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THE CONSIDERATION OF THE HUMAN ELEMENTS
IN THE COMMAND ESTIMATE

A thesis presented to the Faculty of the U.S. Army
Command and General Staff College in partial
fulfillment of the requirements for the
degree

MASTER OF MILITARY ART AND SCIENCE

by

AGUS WIDJOJO, LTC
Indonesian National Army

Fort Leavenworth, Kansas
1988

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This study proposes to determine whether a systematic method of evaluating human elements in combat should be incorporated in the command estimate. The research hypothesis of the study is that the exclusion of the human elements in the command estimate is inconsistent with the concept of combat power; hence the command estimate should incorporate a systematic method of evaluating human elements in combat to conform to that doctrine. The research is conducted with an emphasis on the subject relevant approach, which is the interaction between the human elements and the combat environment. It does not attempt to quantify those human elements but tries to find a conceptual model consisting of indicators that can anticipate human element conditions of a force in an upcoming battle. It uses current theories and studies on how soldiers react to the combat environment, the identification of the influencing factors on combat outcomes and historical data of the overriding influence of the human intangible variables over physical tangible variables on combat outcomes.

The study concludes that although there is already an awareness of the human elements in the command estimate, a disconnect in doctrine exists by not providing sufficient attention to consider the human elements in the analysis of relative combat power of the situation estimate. It argues that there is an interaction between human elements and the combat environment, and that those human elements seem to have overriding influence on combat outcomes. The study identifies leadership, training, experience, cohesion, manpower quality and national characteristics as the six major groups of human elements to be considered as indicators to evaluate the influence of human elements on a unit's performance in an upcoming battle. Finally, the study builds a conceptual framework as a guide to identify those factors, to be used in the analysis of relative combat power of the situation estimate.

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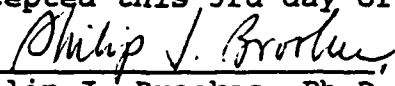
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The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

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This study proposes to determine whether a systematic method of evaluating human elements in combat should be incorporated in the command estimate. The research hypothesis of the study is that the exclusion of the human elements in the command estimate is inconsistent with the concept of combat power; hence the command estimate should incorporate a systematic method of evaluating human elements in combat to conform to that doctrine. The research is conducted with an emphasis on the subject relevant approach, which is the interaction between the human elements and the combat environment. ~~It does not attempt to quantify those human elements but tries to find a conceptual model consisting of indicators that can anticipate human element conditions of a force in an upcoming battle.~~ It uses current theories and studies on how soldiers react to the combat environment, the identification of the influencing factors on combat outcomes and historical data of the overriding influence of the human intangible variables over physical tangible variables on combat outcomes.

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CHAPTER I

INTRODUCTION

The art of war is subjected to many modifications by industrial and scientific progress. But one thing does not change, the heart of man. In the last analysis, success in battle is a matter of morale. In all matters which pertain to an Army, organization, discipline, and tactics, the human heart in the supreme moment of battle is the basic factor. It is rarely taken into account, and often strange errors are the result.

Colonel Ardant duPicq

A. Background.

History has witnessed forces that fought outnumbered and won. Trevor Dupuy has selected a number of historical battles of that nature. In the battle of Austerlitz, Napoleon defeated the more superior Army of Austria and Russia. In the battle of Antietam, although General McClellan was able to stop the confederate movement from the North, his effort was driven back by the Confederate Army led by General Lee. In World War II, the German's 3rd Panzer Grenadier Division, while fighting outnumbered by a 1 to 3 ratio to the American 34th Infantry Division, succeeded in stopping the Americans in their advance upon Rome in May

1943 in a bitter four day battle.¹ By traditional methods of measuring combat power, superior forces should have had little difficulty defeating their opposing force. Those outnumbered forces fought and won due primarily to the successful use of combat multipliers.

A dominating combat multiplier is leadership. To discuss the application of combat power of a unit is to assess the combat effectiveness of a unit, which is the performance of the unit in actual combat. Combat effectiveness is a result of leadership decisions on how to employ numerical physical strengths and how to exploit other combat multipliers such as terrain, weather, morale, cohesion, tactics, and others. In addressing combat effectiveness, Sam C. Sarkesian stated:

Achieving a high level of combat effectiveness is a function of the "art" of leadership, rather than a science. As most military historians will agree, success in battle and the performance of units in various combat situations are contingent upon the will of the protagonists and the quality of leadership.²

While various studies have been conducted to examine the human elements in combat, little has been done to investigate the human elements of a force and come up with indicators that can anticipate the influence of human elements on a unit's performance in the next battle.

FM 100-5, Operations, states that the most essential element of combat power is competent and confident leadership. Competent and confident leadership will

subsequently produce those human elements throughout the unit.

In the final analysis, and once the force is engaged, superior combat power derives from the courage and competence of soldiers, the excellence of their training, the capability of their equipment, the soundness of their combined arms doctrine, and above all, the quality of their leadership.³

While FM 100-5 stresses the importance of leadership as the dynamics of combat power, FM 101-5, Staff Organizations and Operations, fails to mention the human elements in the analysis of relative combat power of situation estimate. It incorporates maneuver units and supporting fires as the basic factor of combat power, while additional factors that might be considered are deception, mobility, terrain, dispositions, weather, logistics support, psychological operations, and electronic warfare.⁴ The estimate of the situation, as described in FM 101-5, is a tool for a commander to make military decisions in the course of a battle. A commander has to be able to weigh the relative combat power of the opposing forces before making a decision on a course of action which he sees fits best to accomplish the mission.

This study will focus on the significance of human elements of combat power on the outcome of battles. A sound military decision is a military decision taken to accomplish the mission based on the analysis that should realistically weigh the relative combat power of the opposing forces.

Such analysis should be able to be used as a basis to make a judgement as to how a unit may perform in the upcoming battle. In order to arrive at such a decision, the command estimate has to consider the whole spectrum of combat power, including the human element, so that it shall not again result in "strange errors."

B. Significance of the Study.

This study addresses an inconsistency in US Army doctrine. Human elements covered under leadership as a factor of combat power in FM 100-5 are not included in the computations of relative combat power in the command estimate in FM 101-5, the estimate of the situation in particular, although there exists an awareness of the human elements.

DuPuy (1987) may have been correct when he states that we give "much less attention and devote far fewer resources to understanding the human aspects of combat than we give to the purely physical, hard science aspects." Failure in comparing human elements is understandable due to the difficulties encountered in quantifying those factors. As Wm. Darryl Henderson stated in discussing the significance of military cohesion:

The failure to consider the human element in war adequately and an overemphasis on weapon capabilities, number of troops, and other concrete factors are caused by the difficulty in quantifying the human element, whereas the more tangible factors are easily counted, totaled and compared.⁵

Although this study will not attempt to quantify those human elements, it will try to find a conceptual model consisting of indicators that can identify human elements conditions of the opposing forces and anticipate how a force will perform in the next battle.

The results of this study would help military planners to understand human behavior in combat, elements of, and cause and effect process of the human elements in combat, and how they influence combat outcome. It would give commanders a more realistic value of combat power, elements of combat power available to a commander and his adversary, so that a commander can make plans of the use of the whole spectrum of combat power - tangibles and intangibles - more efficiently. A primary significance of the study hopefully would be the improved understanding of the idea of combat power from a vague and abstract concept to a real battle planning tool for commanders, with increased confidence in the procedure. In so doing the command estimate will be consistent with the doctrine which covers leadership as part of combat power, for inconsistency deriving from doctrine hinders the unified effort that may prove detrimental in making a decision. General George H. Decker, former US Army Chief of Staff, emphasized doctrine as "indispensable to an Army...and provides a military organization with a common philosophy, a common language, a common purpose and a unity of effort." Any failure to

integrate the human elements into the command estimate will degrade not only the quality of decisions of the commanders, but also the military operations it supports - or fails to support.

C. Statement of the Problem.

This research proposes to determine whether a systematic method of evaluating human elements in combat should be incorporated into the command estimate.

D. Hypothesis.

This study will assess the problem of how to integrate the human elements of combat power into the command estimate. It will test the hypothesis that the exclusion of the human element in the command estimate is inconsistent with the concept of combat power and that the command estimate should incorporate a systematic method of evaluating human elements in combat to conform to that doctrine. To test this hypothesis the study will answer the following research question and draw conclusions from the answers:

(1) What are the factors that form the human elements in combat and how do they influence the outcome of combat?

(2) Does the present command estimate adequately meet the requirements to enable a commander to arrive at sound military decisions?

(3) What factors should be used as indicators to evaluate the influence of human elements on a unit's performance in the next battle?

E. Assumption.

The study is based on the assumption that the command estimate will continue to be the doctrinal procedure to make military decisions.

F. Limitations.

The study will address the subject at unclassified level.

G. Delimitations.

The study will not attempt to develop a method to quantify human elements of combat power, for the intent of the study is to form an analysis model, that could be used in the field based on subjective qualitative judgement. Another factor that would delimit my study is the element of luck or chance as Clausewitz refers. Anyone who wanted to understand war in a systematic and objectively verifiable manner is always tempted by the power of chance. The reality of the belief that if a commander can embrace all the influencing factors of combat, and employ them in a correct way, he would neutralize chance is still a subject for further discussions. But assuming that Clausewitz' axiom that "chance is not only inevitable but even a positive element in war" is true, this study will not attempt to address chance or luck as an element of combat.

H. Methods and Procedures.

This study starts from the assumption that combat is a form of physical interaction between two opposing forces. Combat as part of war, using Clausewitz's definition, has the purpose to compel the adversary to comply to the other party's will. John Keegan views a battle as essentially a moral conflict, and if it is to result in a decision, one has to bring the moral collapse of the other. A force goes into combat with its combat power. The combat power consists of the tangible physical elements such as manpower strength, units, weapon systems, and the intangible human factor elements such as leadership, cohesion, morale, etc. This study deals with the human element aspects of combat.

A force goes into combat with some previous preparations. One side of those preparations is the preparation in the human element aspect. The human element is a cause and effect process. Those prebattle factors can influence the human elements in two ways, it could be positive with the affect of increasing combat power, and it could be negative with the affect of decreasing combat power. Each with its respective situation, the forces enter the combat zone. In the combat zone, there exists the interaction between the human elements and the combat environment. To the human elements, the influence can also be both ways, positive and negative. If the positive affects build faster on the human elements compared to the

negative affects, the force is said to possess high morale. If the negative affects drain faster than the positive affects can build, then the force will be losing morale, and finally may disintegrate, when the force "runs out of those crucial human elements." The effect of one combat will be carried through by the force to the next combat, and so on it goes. It is these indicators, the effects of one combat event, and the pattern of how it will influence the human element factors of that force in the upcoming battle, that this study attempts to identify. (Appendix A: Human Elements in Combat: A Paradigm).

This study employs the inductive approach, as opposed to the deductive. The inductive approach is a method proceeding from the specific to the general. The specifics are drawn from those historical data identified in previous works. The results of a number of observations provide a basis for the construction of a general theory.

This study employs a combination method of historical method and descriptive survey. Historical method is applied to gain new interpretations by synthesizing secondary knowledge and conclusions from a variety of sources and disciplines that have already been developed and are widely acknowledged. Another aspect of history is that:

Military history is essential to the development of military science because military science is unable to test its theories and hypothesis in laboratory experiments. Military versions of experiments such as field exercises, maneuvers, and

tests can never reproduce the essential ingredient of war, which is fear in a lethal environment.⁶

A descriptive method surveys to find meanings out of observations. It surveys the surface of phenomena to discuss the meaningful aspects of the data which derive from those phenomena. The descriptive method is used because battles have always been and will always be fought by soldiers. We are always surrounded by a realm of human elements and this study is an effort to feel the present and to look into the future.

This study conducts its research on data with no limitations on time, specific type of warfare or geographical area. Rather the research is done with an emphasis on the subject relevant approach, which is the interaction between the human elements and the combat environment. Forms of combat may differ from time to time, from one type of warfare to another, and from one place to another, but whenever and wherever a significant human element event occurs that influences the outcome of battle, there has to be a reason behind it. That reason is what this study tries to grasp. The interest is not in the end result, but the "why" behind the phenomena. Without having to be tied down to a certain timeframe, the answer is always correlated in relation to the specific combat environment, hopefully giving the essence of the human factor that lies behind the phenomena. The study consists of five chapters, including the general conclusions.

Chapter I will introduce the reader to the problem and lay down the groundwork for the research. Chapter II is the survey of the literature. It is a survey into previous works that have been conducted pertaining to the subject of human elements in combat. Result of the survey in Chapter II will be the nature of evidence as the basis for the analysis in Chapter III.

Chapter III will address the factors of human element in combat. Working on the result of survey in Chapter II, the first part will primarily deal with the subject within the scope of human elements that contribute to combat power. The analysis will attempt to come up with those factors that form the human elements in combat and how they affect combat power. This part will use the descriptive method and will form the theoretical basis for subsequent parts of the study. Chapter III will also explore historical data to present the facts and reasons why there has been combat won by outnumbered forces. It is based on the premise that if human elements affect combat power, we could assume that there will be some influence on the performance in combat. It has been the traditional approach, that battles have been won by the side that has the superior physical tangibles in its combat power. If the influence of the human elements is to be overriding, there have to be battles which were won by forces who fought

outnumbered. Chapter III attempts to answer the first research question:

What are the factors that form the human elements in combat, and how do they influence combat outcomes? The second part of Chapter III will use the historical survey method.

Chapter IV will address the subject of the consideration of the human element in the command estimate. It will consist of two parts. The first part will discuss the nature of military decision making by analyzing the logical thoughts as the basis for military decision making. It will also analyze if the present command estimate has met all the requirements to enable a commander to arrive at a sound military decision. This part will try to answer the second research question:

Does the command estimate meet all requirements to enable a commander to arrive at a sound military decision?

The second part of Chapter IV will work to construct a conceptual model based on the discussions made in Chapter III and the first part of Chapter IV. If the human elements affect combat power, and are necessary to be considered in the command estimate, are there any indicators that we may base our analysis upon to judge the state of human element factors in the upcoming combat? If there exists a pattern of indicators which may lead to a certain behavior in the next combat, that pattern would be the basis to construct an

analysis model. This part will attempt to answer research question number three:

What factors should be used as indicators to evaluate the influence of human elements on a unit's performance in the upcoming combat?

Chapter IV uses the descriptive survey method.

This study uses secondary sources (books and periodicals), published Army doctrine, and CGSC texts that discuss issues relevant to the subject.

I. Definitions.

Agreement on the definition of terms is required so that the reader may begin the study with an understanding of how these terms are used within the context of this study.

(1) Human Elements. The elements of combat power that are derived from human behavior and attitudes with emphasis on external and situational factors. The human elements have been referred to in such terms as esprit de corps, group morale and elan. Generally, it refers to the motivation of the individual soldier as part of a group. Currently the favored term - cohesion - is given a broader and more definitive meaning.⁷

(2) Cohesion. The bonding together of members of an organization/unit in such a way as to sustain their will and commitment to each other, their unit and the mission.⁸ Cohesion also refers to the attitudes and commitments of the individual soldiers to the integrity of the unit, the will

to fight and the degree to which these are in accord with societal values and expectations.

(3) Combat Power. The ability to fight by measuring the effect created by combining maneuver, firepower, protection, and leadership in combat action against enemy in war.⁹ Trevor N. Dupuy uses a term - combat variables - to address those factors which affect combat outcomes, consisting of tangible and intangible combat variables.¹⁰

(4) Tangible Combat Variables. Combat variables which as a result of observation, research, or some form of analytical process, specific quantitative values can be assigned which are believed to represent the practical effect of the variable in modifying the value of one weapon or a collection of weapons.¹¹

(5) Intangible Combat Variables. Combat variables which are - at least for the present - impossible to quantify with confidence, either because they are essentially qualitative in nature, or because for some other reason they currently defy precise delineation or measurement.¹²

(6) Combat Effectiveness. The capability of units dependent upon troop capability, but is also dependent upon leadership, tactics, and other factors.¹³ In the final analysis, the only measure of combat effectiveness is the performance of the unit in actual combat.

(7) Command Estimate. A thought process to collect and analyze relevant information for developing within the time limits and available information, the most effective solutions to a problem.

J. Conclusion.

This chapter has introduced the reader to the problem, identified the fact that an inconsistency exists between the concept of combat power and the command estimate. Such inconsistency may affect the quality of the decision and be harmful to the decision maker. This chapter also covered the background, limitations, delimitations, significance of the study, and operational definitions to be used, and thus laid down the groundwork to the research and determine whether a systematic method of evaluating human elements in combat should be incorporated into the command estimate. A survey of the literature as a background for this study will be provided in Chapter II.

ENDNOTES

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CHAPTER II

SURVEY OF THE LITERATURE

One might say that no one is willing to acknowledge that it is necessary to understand yesterday in order to know tomorrow, for the things of yesterday are nowhere plainly written. The lessons of yesterday exist solely in the memory of those who know how to remember because they have known to see and those individuals have never spoken.

Colonel Ardant duPicq

A. Introduction.

The purpose of this chapter is to review the variety of sources related to the subject of the human element in combat that have already been developed. Within the survey the following categories were selected for investigation:

(1) Military studies dealing with troop combat performance.

(2) Memoirs of commanders known to have mentioned the subjects of combat performance.

(3) Accounts of combat as viewed by the individual soldier which may provide insight on combat effectiveness.

(4) Materials that seek to find answers to the question of why one unit though outnumbered fought well in

one situation, while having a favorable force ratio, disintegrated in another situation.

(5) Materials relating to the thought process of the command estimate.

As the subject discussed in the literature had inter-relationship among those categories listed above, most of the sources did not have clear cut categories of discussion, and may have discussed across two or more of those categories.

As has been noted in Chapter I, the dominating method and procedure used in this study is historical. One of the reasons for this is:

Since war is undoubtedly the best laboratory of combat motivation, historical studies are valuable in peacetime in supplying evidence that can otherwise only be simulated. Thus, many of the best known studies of morale are firmly rooted in historical analogy.¹

Also, an implied problem in examining history in a theoretical approach is to decide where to start. The issue will be settled as we see the variety of starting points used by various authors each with his own rationale. Finally, historic literature implies the risk of subjectivity, whether it was done unintentionally or intentionally. In this case, history writing has its trade-off. When it is written by the historical actor, it has not achieved yet the "historical distance." While the standard of authenticity could be regarded as high, the risk of subjectivity is also high. A history writing that is

conducted within reasonable "historical distance" may achieve more objectivity, but loses its value as a "first hand account." Addressing the problems of eyewitness testimony of historical events, Kellett concluded that:

(1) Eyewitnesses tend to differ in their recollections and interpretations of the same events.

(2) The time difference between the occurrence of the event and the report may distort the memory of thoughts, feelings, and motives which may not be valid in contemporary values.

(3) The credibility of the author as truly representative of the participant in a battle.²

B. Survey of the Literature.

One of the first military thinkers to conduct an in-depth study of psychological factors in war was Colonel Charles J. Ardant duPicq. In his classic, Battle Studies, he held a view that man was the "incomparable instrument whose elements, character, fears, desires, and instincts are stronger than abstract rules." He believed that the main purpose that draws man into battle is not the fight, but victory. In so doing he will do everything to adopt a course of action with the least risk. To overcome fear, he advocated the need to enforce discipline. Discipline will produce esprit. To maintain discipline requires surveillance and supervision of groups of men who know each other well.

From living together and obeying the same chiefs, from commanding the same men, from sharing fatigue and rest, from cooperation among men who quickly understand each other in the execution of warlike movements, may be bred brotherhood, professional knowledge, sentiment, and above all, unity.³

Cohesion was important to provide mutual support among the soldiers. He said that an over reliance on material and technical support could cause demoralization if the support failed. He concluded that the determining factor in battle is the quality of troops organized in units under a leadership that best assumes esprit, unity, and confidence.

Of leadership, Ardant duPicq praised Hannibal as the "greatest general of antiquity by reason of his admirable comprehension of the morale of combat, of the morale of the soldier, whether his own or his enemy's, and of always securing the advantage of morale."⁴ In the midst of battle he emphasized the importance of the leader being seen and known to be near by his soldiers.

In 1949, a systematic study of human behavior in war was conducted by Samuel A. Stouffer, et.al, in their "Studies in Social Psychology in World War II, Volume I - IV." Most of the study was related to the soldier's individual psychological reaction to battle. His studies found that prolonged exposure to battle on soldiers does not necessarily adjust them to control their fear. The findings were split between the European and Pacific theatres. In the European theatre, officers and enlisted men were more

likely than their compatriots in the Pacific theatre to say that combat became more frightening the more they saw it.⁵ Fear of battle thus is relative to the battle conditions. Soldiers in the European campaign were almost continually committed to action, while in the Pacific, the strategy of island hopping meant that soldiers experienced short periods of intense fighting followed by long intervals out of combat. Also, casualties in the European campaign were very heavy compared to the relatively light battle casualties in the Pacific.

Samuel A. Stouffer also found that the factors most frequently observed as having bad effects on combat performance are fatigue of troops from being in combat for too long, the problem of inadequate reconnaissance of enemy positions, lack of food, clothing, and equipment, and underestimation of the fighting ability of the enemy.⁶ Two factors which were more frequently cited in the European campaign than Pacific are "inadequate communications with other units" and "lack of convictions about what we are fighting for." The study also supported the role of group loyalty to combat effectiveness.

Combat veterans in both Pacific and Mediterranean theaters agreed in rating highly the supporting value of group solidarity in keeping them fighting when the going was tough.⁷

In relating pride in outfit to readiness for combat, Samuel Stouffer concluded that there was a tendency for soldiers who were proud of their outfit to be somewhat more likely

than others to indicate that they were ready for more combat. Those same soldiers were more likely to say that they became more confident in themselves the more they were in combat.

As the research was based on individual psychology, no attempt was made to examine human elements in combat at unit level.

There is a great deal of literature dealing with morale and its relationship to combat effectiveness, also with more specific measurable components of morale and their relationships. General SLA Marshall, in Men Against Fire (1947) stated that formal discipline is of limited utility to enforce the soldiers' will to fight, for soldiers fought for their comrades. The dispersion of soldiers required by tactics in the battlefield creates a feeling of isolation, a sense of being cut off from comrades who have always been present during peacetime. In isolation soldiers have to have communication links with other soldiers to know what is happening. This link will build confidence. If the link does not exist, an unexplained movement to the rear will cause other soldiers to join the suspected flight. Consequently, Marshall emphasized the importance of a strong leader. Even in the absence of a formal leader there would emerge a leader out of someone identified as a "natural" fighter.

In his study, Morale: A Study of Men and Courage, John Baynes (1967) tried to look for those factors which gave the 2nd Scottish Rifles such morale at the Battle of Neuve Chapelle in 1915 that it was able to suffer appalling losses with no weakening of its spirit. John Baynes' work is unique in that it does not deal with the extreme high or extreme low quality of troop performance but rather how a unit could sustain and maintain its morale while suffering very high casualties. He concluded the study by listing the five most important ingredients to high morale:⁸

(1) Regimental loyalty, which implies the pride of belonging to a good unit and a family spirit.

(2) Leadership, portrayed by the excellent officer - enlisted men relationship based on mutual trust and confidence.

(3) Discipline, well balanced between self discipline and the imposed.

(4) Commitment to duty developed by excellent training background.

(5) Sound administration by the continuous supply of war necessities.

Other notable works include Fighting Spirit: A Study of Psychological Factors in War (FM Richardson 1978), a recent work by Edward Dinter, Hero or Coward: Pressures facing the Soldier in Battle (1985), and The Face of Battle: A Study of Agincourt, Waterloo, and the Somme (John Keegan,

1976). With the medical background of its author, Fighting Spirit deals with the subject of psychiatric casualties. In this book, FM Richardson proposes that fear essentially arises from the power of "Fear of the Unknown." To overcome fear, the unknown must be eliminated. This is done through training which is a process of hardening or tempering of the will. He also emphasized morale, and that morale grows out of comradeship and regimental spirit. Preservation of high morale is achieved through leadership and discipline.

In his study Hero or Coward, Elmar Dinter attempts to provide an answer to the question - Why does one soldier emerge from battle as a hero, and the other as a coward? The findings concluded that the omnipresence of fear of the unknown and the unexpected becomes apparent and this results in the desire to flee. Also, that there is strong fear of mutilation. Factors that can overcome those fears are the right policy in personnel selection, organization, equipment, training, education, leadership, and tactics. He concluded that the effectiveness of the fighting forces depends almost entirely upon their military leaders.

If leaders at all levels select their subordinates properly, motivate them, train them, and equip them well, and lead them successfully, then no power from outside the armed forces can gain any important influence.⁹

He also reminded that the pivotal focus of military morale is and remains the primary group. It is interesting to note, however, on his comments that, "If the people at home

do not support war, it will have an adverse effect on the soldiers' will to fight."¹⁰

Keegan (1976) begins his study with the Battle of Agincourt in 1415; his other case studies are the Battle of Waterloo in 1815, and the Battle of the Somme in 1916. These cases were chosen because each represented a different weapons technology. He believed that battle is essentially a moral conflict, and if it is to result in a decision, one has to bring the moral collapse of the other. Although he examined three battles from different time periods, each had the human element in common:

"the behavior of men struggling to reconcile their instinct for self-preservation, their sense of honor and the achievement of some aim over which other men are ready to kill them. The study of battle is therefore a study of fear and usually of courage, always of leadership, above all it is always a study of solidarity and usually also of disintegration for it is towards the disintegration of human groups that battle is directed."¹¹

In his book Combat Motivation: The Behavior of Soldiers in Battle, Anthony Kellest (1982) conducted an analysis of the experience of combat. It covered a number of findings, most notably:

(1) Loyalty to the primary group and the pressures that loyalty exerts on the individual are important elements in combat willingness but are not sufficient explanation of why men fight.

(2) Cohesive groups are most likely to be effective in terms of the fulfillment of the military mission.

However, instances have occurred in which unit integrity has broken down and yet soldiers have pressed on to fight.

(3) Training, is not only important as a socialization process, it is also crucial to the soldier's acquisition of reasonably accurate preconceptions of the feel, the form, and the scope of battle.

(4) Men, particularly in dangerous and high stress situations, desire leadership so that their immediate needs may be met.

(5) Leaders confer a sense of protection by virtue of their military skills; wasteful leadership and high casualties erode the subordinate's sense of well being.

(6) A man motivated by ideology is likely to be more well armed against demoralization and more prepared for further combat than soldiers without ideological beliefs.

(7) Home front morale and beliefs have increasingly been transmitted to combat soldiers and have had an impact on them.

(8) Training and information seem to be the most important factor in the effort to reduce surprise and of the concomitant potential for demoralization.

(9) Whatever the motivation of the soldier, they are likely to undergo some change as a result of combat experience.¹²

An extensive study on combat effectiveness in a publication of the Series on War, Revolution and

Peacekeeping is "Combat Effectiveness: Cohesion, Stress, and the Volunteer Military" (Sam C. Sarkesian, ed. 1980).

Because the study was made with the American experience in Vietnam as the background, it is understandable why it dealt so much in the relationship between combat effectiveness and national characteristics. Sam C. Sarkesian contended that readiness, cohesion, effectiveness and credibility are the parts that formed military effectiveness. Achieving a high level of combat effectiveness is a function of leadership. On the relationship of combat effectiveness to national characteristics, he further assumed that:

Combat effectiveness may be more a function of such things as domestic value systems, the will to fight, ideological commitment, styles of leadership, and the degree of value accommodations rather than technical capability and skill proficiency.¹³

In one of the articles, William Hauser said that the four factors that motivate soldiers to fight are submission, fear, loyalty, and pride.¹⁴ Each comes from various sources and is interdependent to a certain extent on the others. Anne Horberg believed that the factors associated with military staying power are the military competence of individuals, group cohesion and effectiveness, organizational and environmental characteristics and leadership qualities and values. Interesting notes in the conclusions drawn by Sam C. Sarkesian are:

(1) The stress on quantitative data to the degradation of qualitative and sociopolitical considerations distorts the measuring system.

(2) Rarely do combat effectiveness studies consider ideological components and the psychological motivations of the individual soldiers.¹⁵

Another contemporary study on combat effectiveness based on the American experience in Vietnam is Cohesion: The Human Element in Combat (Wm. Darryl Henderson, 1985). In writing the book Wm. Darryl Henderson maintains that we cannot expect tactical situations in future battlefields to be devoid of the human factors. The book presented the basic variables relating to human elements in combat, which were applied and compared among four countries, the United States, Israel, Vietnam, and the Soviet Union. Those basic variables relating to the human element according to the author are the unit's ability to provide for the soldier's needs, unit integrity, and stability, the soldier's perception of escaping the unit, unit motivation and control, deviance from unit norms, commonality of values, factors promoting small unit cohesion and leadership. He concludes that modern warfare requires an Army to rely upon a strong sense of internalized discipline that places loyalty and responsibility to unit objectives as the highest good.

A pioneering effort to develop methods for quantifying nonnumerical combat factors on an historical basis was conducted by Historical Evaluation and Research Organization (HERO) in 1963. The relative combat power ratio, which is easily quantified physical variables of two opposing forces in a specific engagement, are analyzed against the outcome, and any significant deviation from the ratio is attributed to behavioral factors. "The Effects of Combat Losses and Fatigue on Operational Performance" was one of the reports prepared by HERO in 1979 for US Army TRADOC. The effect of fatigue on unit effectiveness was analyzed for eight campaigns over the period 1943 through 1973 involving sustained combat for periods of 11 to 56 days. Three fatigue indicators were examined: (1) casualty rates; (2) score effectiveness rates; and (3) an interrelationship of casualty and score effectiveness rates and measures of combat intensity. The indicators were shown to decline generally over time in relation to the length of combat without relief. The effect of fatigue on the fatigue indicators was shown to be greater for the attacker than for the defender.¹⁶

Another HERO report prepared by Trevor Dupuy and Gay Hammerman (1980) was "Soldier Capability - Army Combat Effectiveness Historical Combat Data and Analysis." The study concluded that superior leadership and training are required to compensate for a low troop quality, with

leadership of prime importance; that there is a strong statistical association between combat effectiveness of armies covering the past 40 years and national characteristics of male literacy, household size (negative), birth rate (negative) and temperature of the capital city in the hottest month (negative); that the high level of correlation indicates the probability that a formula could be derived to estimate the effectiveness of any two forces in a war game; and that detailed data on combat experience is available for units of exceptionally high combat effectiveness and for both sides in combat between battalions and regiments.¹⁷

A book dealing with a more detailed discussion on the use of history to evaluate and predict the outcome of armed conflict is "Numbers, Predictions, and War" (Trevor Dupuy, 1985). In the book Trevor Dupuy described the Quantified Judgement Method of Analysis of Historical Combat Data (QJM), an analytical methodology that he had been primarily responsible for developing. By working from an unrepresentative sample of battles, he believed that there is no relationship between force ratios and battle outcomes. "When a smaller force is successful, it is because its numerical strength has been multiplied by physical or behavioral factors peculiar to that battle." He also elaborated on identifiable variables that affect combat outcomes. However, "subjective qualities like leadership,

training, and morale are almost impossible to assess in absolute terms with complete objectivity." He went on to suggest that those variables can be given mathematical weights, which is bound to be highly subjective. Another book written by COL T.N. Dupuy is Understanding War (1987). The book was written soon after the publication of Numbers, Predictions, and Wars. The book deals with the same focus of discussion, which is the Quantified Judgement Model Analysis. Dupuy discussed the model in the more comprehensive context of military history, relating it to previous military thoughts such as Napoleon, Clausewitz, Jomini, JFC Fuller and Frederick W. Lanchester. Dupuy also analyzed some historical combat case studies to prove the Quantified Judgement Model as a method to relate historical cause in effect in war. Dupuy comments that Clausewitz's "how on numbers" supports and could be supported by QJM as long as we can quantify all the influencing factors on combat, including the intangibles, which explains that if combat was won by a force who fought inferior in strength, it was because it had the advantage of the intangible factors.

"Casualties as a Measure of the Loss of Combat Effectiveness of an Infantry Battalion" (Dr. Dorothy Clark, 1954) is another research that has been developed in an attempt to identify the percentage of casualties a unit could sustain prior to becoming combat ineffective. Her

research concluded that the difference in the ability of infantry battalions to conduct their missions was not solely a function of casualties sustained. Leadership, fire support, reinforcements, and communications were the most frequent and powerful influence. Two books could give insight to studies discussing the factors that contribute in building a fighting force from a comparative national characteristic viewpoint. Fighting Power: German Military Performance, 1914-1945 (Martin van Creveld, 1980) is a study which attempts to describe how the German Army fosters and maintains its superior qualities during World War II, as an army "second to none during that period. Reuven Gal, in his book A Portrait of the Israeli Soldier attempts to explain the common features of the Israeli soldiers pertaining to the motivation of these soldiers to serve in the Israeli defense force and fight their wars. It also pertains to the elements of the fighting spirit which the IDF has successfully maintained a consistent superior combat performance while fighting outnumbered in most cases.

References concerning the doctrines of the US Army, to include combat power, and the command estimate are addressed in the various US Army Field Manual publications. The May 1986 version of FM 100-5, Operations, addressed leadership as part of the dynamics of combat power. It states that the most essential element of combat power is competent and confident leadership.

The May 1987 version of FM 101-5, Staff Organization and Operations prescribes the basic doctrine for staff organization and operations, to include the command estimate. Appendix E "Estimates" provides detailed information on the format and content of the situation estimate. It states that:

...in the process of developing estimates in the military decision making process, commanders and staffs at all levels must constantly be aware of the human dimension of battle. The human dimension of battle is defined as the overall mental, moral and physical willingness and capability of soldiers to do their duty on the battlefield and be part of a cohesive, disciplined unit.¹⁸

However, these human elements on the battlefield were not identified in the computation of relative combat power of the situation estimate, although an awareness of the human elements exists in other estimates.

The US Army Command and General Staff College Student Text 100-9, The Command Estimate provides the academic, systematic process for applying the command estimate of the situations to the modern battlefield. Its emphasis is to make the estimate faster and more accurate. It introduces the subjective comparison value evaluation in the analysis of relative combat power. The process does not address the intangible dynamics of combat power covering the human element on the battlefield.

C. Conclusion.

In Chapter II, we have made a survey into previous works that have been conducted pertaining to the human

elements in combat. The literature surveyed covered the scope of military studies into combat effectiveness, combat accounts that may provide insight to combat effectiveness, commander's memoirs mentioning combat effectiveness, case studies of extreme unit combat performances and thought processes in military decision making. Results of the survey reveal that there is an interaction between human elements and the environment in combat, and that leadership is the focal point of determining how human elements react to combat. The survey also reveals that there are human element factors that motivate a soldier to fight and that those factors can multiply combat power or cause a unit to disintegrate. Because of the affect the human element has on combat power, the human element may influence combat outcomes. Superiority in numerical strength may not prove to be the only indicator in the outcome of a combat, but if a force fought inferior in numerical strength and came out as victors, that force had the advantage of intangible human element factors.

The survey also studies the command estimate as a tool for a military commander to come to a sound decision. Limited references pertaining to military decision making can be found. References on the subject of business and general management decision making proved to be insufficient to be used in the context of military decision making due to the characteristic differences and the peculiar military

situation. However, the survey found that a decision making process has to follow the logical thought process and take account of all factors pertinent to the situation. The command estimate is established as a tool for military decision making based on the subjective comparison value evaluation of the combat power of the opposing forces. Leadership is found to be one of the essential factors of combat power.

Although Dupuy (1987) identified and further attempted to quantify the intangible human element factors lending themselves to battle prediction by mathematical analysis, no method of identifying the indicators, and constructing a model to be used in comparing those indicators was discussed. Using the intangible human element factors and the interaction between the human elements and the combat environment identified in previous studies, this study is directed to build a model to anticipate the human element condition of a force in an upcoming combat. Based on the survey of the literature conducted in this chapter, an analysis of the human element factors in combat will be covered in the next chapter.

ENDNOTES

1. Kellett, p. 11.
2. Kellett, p. 12.
3. Kellett, p. 13.
4. duPicq, p. 96.
5. Stouffer, p. 70.
6. Stouffer, p. 71.
7. Stouffer, p. 136.
8. Baynes, p. 253.
9. Dinter, p. 11.
10. Dinter, p. 73.
11. Keegan, p. 303.
12. Kellett, pp. 319-330.
13. Sarkesian, p. 13.
14. Sarkesian, p. 188.
15. Sarkesian, p. 15.
16. HERO, p. ii.
17. HERO, p. iv.
18. US Army, FM 101-5, p. E-1.

CHAPTER III

FACTORS OF HUMAN ELEMENTS IN COMBAT

"What men will fight for seems to be worth looking into."

H. L. Mencken

A. Introduction

In Chapter II, we found that there have been previous works that probed the interaction between the human elements and combat. The result of the survey in Chapter II will form the basis for the analysis in this chapter. The purpose of this chapter is twofold. First, to try and reach an understanding of the human elements of combat power by identifying the factors that form the human elements in combat and the way they affect combat power; second, to assess the overriding influence of intangible human elements over tangible physical elements in the outcome of combat by exploring into historical data to present the facts and analysis of battles that have been won by outnumbered forces.

B. The Combat Environment

To discuss the human elements in combat, we must start from the combat environment viewed from a human element perspective. It is important to understand how a soldier views combat.

not so much because of the number of men involved as because of its socio-psychological significance for combat and non-combat soldier alike.¹

The characteristics that distinguish the combat environment from other stressful physical conflict environment is the all pervasive influence of fear in a lethal environment (Dupuy, 1987). The lethal weapons employed by opponents to achieve their objectives create an environment of lethality and awareness of the constant danger of death. Fear is the most dominant characteristic of combat. But we cannot generalize the battlefield. Objective differences in the type of situations to which troops were exposed must be borne in mind. Even in the front-line unit, there is a different perception of combat between the leader and the soldier. As described by John Keegan:

Battle for (the soldier) takes place in a wildly unstable physical and emotional environment; he may spend much of his time in combat as a mildly apprehensive spectator, granted, by some freak of events, ... they may suddenly be able to see nothing but the clods on which he has flung himself for safety, there to crouch for minutes, or for hours; he may feel, in turn, boredom, exultation, panic, anger, sorrow, bewilderment, even that sublime emotion called courage.²

One of the results of the combat environment which affects combat power and can spread easily among soldiers is

a situation of stress. Stouffer recapitulated situations that may lead to stress:³

1. Threats to life, limb and health.
2. Physical discomfort.
3. Deprivation of sexual and concomitant social satisfactions.
4. Isolation from accustomed sources of affectional assurance.
5. Loss of comrades, and sight and sounds of wounded and dying men.
6. Restrictions of personal movement.
7. Continual uncertainty and lack of adequate cognitive orientation.
8. Conflict of values (duty versus comfort and security; duty versus family obligations, previously accepted moral codes versus killing; and informal group codes versus formal requirements of the military situations).
9. The sense of not counting as an individual.
10. Lack of privacy.
11. Long periods of enforced boredom, mingled with anxiety between actions.
12. Lack of terminal individual goals.

But the fear for one's own life does not seem to be as great as has been assumed. There is a stronger fear of mutilation. Other fears are fear of physical or psychological

isolation (whether with group or with the people at home), fear of the unexpected and unknown and fear of physical deprivation or over stimulations.⁴

While creating stress on the soldier, the combat environment also results in important social features which build social integrity and strength among soldiers as units. Stouffer et.al. divided those social features into three categories: features as part of the definition of the combat situation, institutional features which are primarily brought to the combat situation, and social features which arise primarily within the combat situation.⁵

1. The features which are part of the combat situation are:
 - a. Combat involves a major external threat to the group as a whole. In conjunction with other factors, it results in a strong social cohesion.
 - b. The combat situation allows a socially approved outlet for aggressions which in a normal situation would be tabooed within the society.
 - c. Combat situations always structure the men toward definite goals. There is always a mission for the unit, and the responsibility for each individual soldier is clear cut.
2. The institutional features are:
 - a. The Army's rigid and hierarchial organization was its answer to the stress and confusion of battle.

The soldier is a part of a "vast system of discipline and coordination."

- b. The impersonal controls built in as the prime characteristics of the Army, as the result of continuous close-order drill and garrison discipline training.

3. The social features are:

- a. The combat situation was one of mutual dependence where a man's life depended upon the actions of others.
- b. The psychological violation of the front line soldier, and the continuous threat of death, are part of the significant experience the soldiers shared which creates a further bond between individual and group.

This is the environment the front line soldier has to face when he goes to combat. There will be psychological conflicts within each individual soldier, and these are the soldier subjects of our following discussions to identify the cumulative effect it will have on the unit in the battlefield. We will try to identify those factors by distinguishing factors that affect the human dimension of combat power positively, and factors that affect the human dimension of combat power in a negative way.

C. Positive Factors Affecting the Human Dimension of Combat Power

Positive factors affecting the human dimension of combat power are those human dimension factors which increase combat power. Research of literature resulted in the identification of a spectrum of those factors. The studies of group processes have been the focus of historical research, while the individual has been more the traditional focus of psychological analysis. By use of different approaches and emphasis on different aspects, we find some overlap in these works. It is also very likely that different terms were used to describe similar combat human dimension phenomena. (For different factors identified in previous works, see Appendix B). Analysis of these factors will be done by categorizing them into six major significantly distinguishable groups, and yet still cover the spectrum identified in previous works. Those are the human dimension factors with a positive effect on combat power. They are leadership, training, experience, cohesion, manpower quality, and national characteristics (Appendix B).

1. Leadership. Leadership is the starting point and the most important human dimension factor contributing to combat power. Leadership will determine whether a combat power potential will or will not be turned into an effective combat power. To describe the process, FM 100-5 states:

Leaders combine maneuver, firepower, and protection capabilities available to them in countless combinations appropriate to the situation...

Therefore, while quantitative measures of available capability are important, the quality of available capabilities, the ability of the leader to bring them to bear, and the ability of the leader to avoid the enemy's efforts to degrade his own capabilities before or during the battle may be equally or more important.⁶

Leadership also builds a strong and positive group. Effective leadership can lead a group into achieving such various favorable states as good discipline, training, cohesion, unit esprit, and so on. Addressing the relationship between leadership and morale, Lord Moran defined leadership as "the capacity to frame plans and the faculty of persuading others to carry them out in the face of death,"⁷ while President Truman describes a leader as "a man who has the ability to get other people to do what they don't want to do and like it."⁸ In building cohesion, Henderson sees leadership as the most important factor in achieving congruence between unit norms and organizational objectives. To make leadership effective in building cohesive units, the leader must transmit organization goals to the group and lead the unit in achieving those goals through his influence. The leader must also maintain unit cohesion by supporting the organization and detecting and correcting any deviation from group norms. Finally, the leader maintains the ideologically-sound soldier through setting the example, teaching, and indoctrination.⁹ Leadership can also take advantage of neutral environmental

variables such as weather, terrain, and season that results in increasing the unit's and decreasing the enemy's posture.

As to the question which leadership style is best suited for a combat situation,¹⁰ previous works have not been able to come up with one agreed solution. To gain some insights of leadership style emphasized in the German Army prior to World War II, the Truppenführung of 1936 stated.¹¹

- a. Leadership in war demands leaders of judgement, a clear understanding and foresight...
- b. Every commander is to commit his entire personality in any situation without fearing responsibility. A readiness to assume responsibility is the most important of all qualities of leadership.
- c. Commanders are to live with the troops and to share with them danger and deprivation, happiness and suffering.

The use of the term "soldiers" and the regulation that required men and officers to salute each other further emphasized the bond between officers and men. Discipline is the central pillar on which the Army is built, and as Truppenführung puts it, war is a matter of character above all.¹²

Formed by its national characteristics, leadership of the Israeli Defense Forces (IDF) is exceptional among Western militaries due to the reason that it does not have a stable NCO corps in the traditional sense and that all of its officers grew up through the ranks. The model of IDF leadership is based on the following premises:¹³

- a. No military position is permanent.

- b. Being a leader is a privilege and achievement rather than a chore or inheritance.
- c. The leader is the best soldier in the unit having gone through the ranks.
- d. The ultimate test of leadership is in combat by personal example.

The IDF leadership model is characterized by vertical progression and leading by personal example. For the IDF, personal example begins with the relationship that exists between the commanders and their men outside combat.

A different school of thought addressed that a leader is given a symbolical, almost mystical role by his men, and that camaraderie may lead a leader into a state of lack of moral authority to demand resistance unto death. When that state exists, it will be an indicator of a leader's abdication of the leader's lonely role.¹⁴

But these differences should be of no surprise because the leadership process exists in a specific situation, and each situation is unique.

Leadership actions that worked in one situation with one group of soldiers, seniors and other key people may not work in another situation.¹⁵

The most important thing is that leaders are expected to lead by example. A result of a survey by Stouffer et.al. shows the importance the men attached to leadership by personal example. When asked of the officers' leadership which gave them confidence, 31 percent of the soldiers

answered, "led by example; did courageous things himself; displayed personal courage and coolness," 26 percent answered, "encouraged men; gave pep talks; joked, passed on information," 23 percent answered, "showed active concern for welfare and safety of men," while only 5 percent answered "showed informal, friendly attitude, worked along with men," and 15 percent were unclassifiable.

2. Training

Good training is the key to a soldier's morale, unit cohesion and combat effectiveness. The result of unit training in preparation for war is twofold: first, character building of the soldiers which enhances discipline, courage, loyalty, pride, preconceptions of combat confidence and resilience; second, it builds unit readiness and effectiveness, which in the final result gives the synergistic effect of unit esprit and morale. During the past century, the British had always viewed training as the basis of good discipline and morale.¹⁶ In 1922 the Southborough Committee argued that

the best possible training should be given to each man as a protection against the occurrence of "shell shock" and that the production of good morale is the most important object in military training.¹⁷

In referring to the correlation between good training and combat performance, Captain Robert Graves categorized three types of units: those that had courage but were bad at drills, those that were good at drills but lack courage, and those that had courage and were good at drills.

He considered the third group the best fighters. The usefulness of drills was emphasized by Lord Gort, who served in two World Wars, held a Victoria Cross and commanded the British Expeditionary Force in 1939-40:

You want something to help you over your fears and if you get control over your fears as you do in drill, it helps drive the man forward in war. The feeling of unison, of moving together, is a help.¹⁸

In answer to a question on "the kind of training which lessens the initial shock of combat," veterans of the North African campaign of 1943 gave as the most frequent answers:

- a. Give men more training under live ammunition.
- b. Show what enemy weapons can do, so that they can know what to expect in combat.
- c. Give men training in how to protect themselves from enemy fire.¹⁹

Although the elimination of fear in realistic training would enhance the soldier's motivation, the opposite probability of a phobic-type reaction was also recognized.²⁰

3. Experience

Logic says that the more experience a unit has the more we expect of their combat effectiveness, because people would have exploited success and would have learned from mistakes. Facts in the real world tell us that there are other variables to be considered. As we are searching for a pattern of the human elements by their interaction in the

combat environment, to form a planning tool for the commanders in the field, the consideration of where in the stage of war that tool is utilized would be of prime importance. Preparation of that unit for combat such as training, preparation time and recruiting systems would be significant in the experience of a unit entering "the first battle." Other variables such as leadership, previous combat outcomes and replacement systems would be more significant during the later stages of the war, in a continuous major war environment like World War II. Other variables like national characteristics and the mobilization system would be more significant for a force of a nation engaged in violent quick wars scattered over a sustained period of time, such as the Arab-Israeli Conflict.

Stouffer's research reminds us of the important differences between the European and the Pacific campaigns of World War II.²¹ During the campaign in mainland Europe and Italy, main forces were continually committed to actions up to the closing weeks before the surrender of Germany. In the Pacific, battle casualties were relatively light during the first two years. The strategy of island-hopping gave units certain periods of intense actions interspersed with opportunities of short rest periods in between. Based on this, the research concluded that with respect to duration of continuous combat and incidence of battle casualties,

the Pacific fighting during the greater part of the war may be said to have been less severe than the combat in Europe.²²

What impact did the differences have on the soldiers? Both officers and enlisted men who fought in the Mediterranean were more likely to say that the more they saw combat, the more frightening it would be. Their compatriots who fought in the Pacific were more likely to say that combat became less frightening. Although officers in both theaters tend to be less likely to admit fear in battle, the difference illustrates the contrast between the two combat environments. (Chart I)²³

CHART I

FEAR OF BATTLE IN TWO THEATERS OF

WORLD WAR II (in percentage)²⁴

Question: "In general would you say that battle fighting becomes more or less frightening the more you saw of it?"										
THEATER	ENLISTED					OFFICERS				
	MF	U	F	LF	TOTAL	MF	U	F	LF	TOTAL
MEDITERRANEAN	74	7	12	7	1766	28	3	27	42	263
PACIFIC	34	3	31	32	4064	9	5	21	65	638

MF = More frightening F = Frightening all the time
 U = Undecided or no answer LF = Less frightening

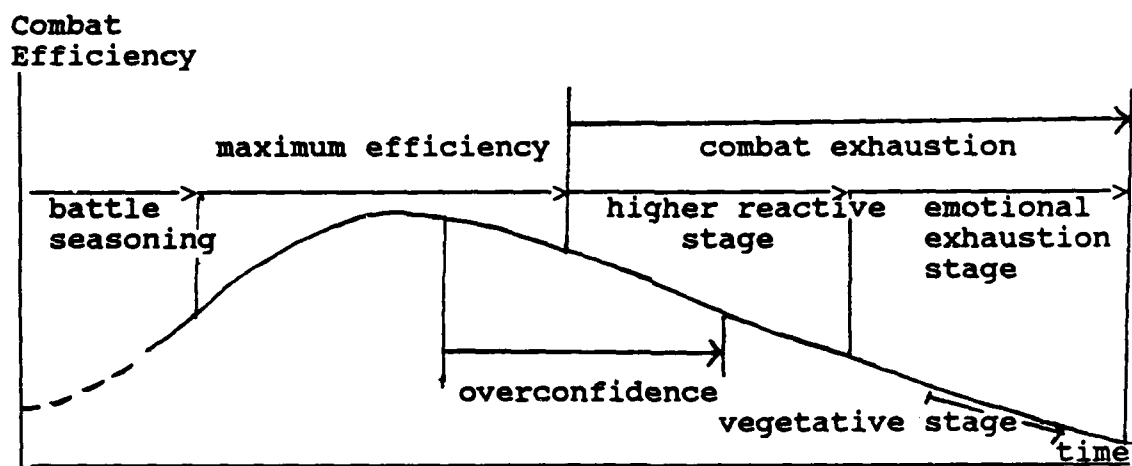
The numbers in the "total" column are the numbers of cases on which percentages are based.

A similar conclusion was reached by Elmar Dinter, who stated that "the moment of reaching breaking point depends also on the nature of the operation." He found that a unit would reach its maximum efficiency at a certain period before going into combat exhaustion (Chart II).

CHART II

PATTERN OF UNIT COMBAT EFFICIENCY

Portrayal of the relations of stress and development of combat exhaustion to the combat efficiency of the American soldier in the Normandy Campaign.²⁵



While military writers have recognized that a combat outcome could result in two extremes, victory or defeat, Montgomery believed that "the best way to achieve a high morale in wartime is by success in battle."²⁶ In the final analysis, the experience of a unit, seen from the viewpoint of the length of time a unit has been exposed to previous combat itself, does not necessarily give the impact of parallel trend of increased combat effectiveness. Previous

combat victories would be more likely considered as indicators of combat effectiveness of its previous experience.

4. Cohesion.

Military combat is a group endeavor to achieve its purpose. Dupuy designated six levels of combat, with war at its highest level concluding with duel at the individual, as the form of combat between two individuals or two fighting machines. By that categorization, it seems that duel is the only form of combat at individual level. A group or military force consists of a number of individuals. Various works have covered the study of motivation of individuals or "what makes a man fight." Those human elements have been referred to in such terms as esprit de corps, group morale and elan. Cohesion is given a broader and more definite meaning. It is the human element at group level formed by the state of morale of the individuals. Henderson further clarifies military cohesion from cohesion, recognizing that "small group norms can militate against the organization," and that military cohesion is the term "to signify that small unit norms which are in congruence with army objectives and goals,"²⁷ Why do individuals surrender their freedom to conform to certain group norms in cohesion? Henderson stated that

...cohesion capable of causing soldiers to expose themselves to enemy fire in pursuit of unit objectives must also satisfy certain needs for the soldier. The cohesive unit becomes, in effect, a

social and support organization capable of satisfying the soldier's major needs.²⁸

Montgomery distinguished cohesion from esprit, the main difference being cohesion occurs at primary group level, while esprit generally applies to larger units.²⁹ Cohesion can be measured indirectly through the presence or absence of conditions which stimulate its development. Those most frequently identified include personnel stability, homogeneity, prior exposure to stress, success and extensive in-group communication.³⁰ Personnel stability is required because mutual affection requires time to develop, and it can only occur if group membership stays constant. In his book Battle Studies, Ardant du Picq stated that a wise organization ensures that personnel formations change as little as possible so that "comrades in peacetime maneuvers shall be comrades in war."³¹ The British regimental system is a way of promoting cohesion and unit esprit:

In armies that have been strongly influenced by British methods, the regimental system is more than simply a reflection of administrative and tactical requirements. It seeks by a variety of means--tradition, territoriality, competition and so on--to promote a sense of community among the members of a regiment or a battalion and to foster an esprit de corps in the unit.³²

The British regimental system also supports group homogeneity. Individuals of similar backgrounds tend to share common attitudes and values. The cohesive unit requires an environment that will enhance a strong sense of mutual affection among its members. Group members tend to

rally together under stress and increase its cohesion after having successfully overcome that stress. To increase cohesion, the threat has to come from outside the group, shared by all group members, must be seen solvable by group efforts, and that rewards are better expected by staying with the group than leaving it. The experience will produce confidence and the value of staying with the group for its members.³³ One of the most significant relevances to the purpose of this study is the relationship between cohesion and success, which is circular: the greater the past success, the greater the cohesion; the greater the cohesion, the greater the success.

The German Army of World War II was well aware of the power of cohesion of a fighting force. This can be seen from their replacement system. Rather than keeping existing divisions up to strength, they used replacements to set up new divisions. This policy meant that German divisions were and remained tight bunches of men who suffered, fought and died together. Also, German units from division down were normally formed on a "national" basis made up of Prussians, Bavarians, or Saxons separately.³⁴

5. Manpower Quality

Dupuy addressed manpower quality as one of the elements of behavioral variables of combat.³⁵ In reacting to the fear of the unknown of the battlefield, Dinter recognized two basic types of soldiers, the driver and the

passenger. The driver is the type of soldier who generally tends to take the initiative, while the passenger remains passive. A unit which consists of more of the driver type will be expected to yield better results in avoiding panic and disintegration.³⁶ Studies were attempted in Korea to describe fighters and non-fighters.³⁷ It found that the fighter was more intelligent, masculine, socially mature and had greater emotional stability, and came from a more stable family background than the non-fighters. In addition, the fighter exposed himself to enemy fire more than others to provide leadership and took aggressive action whereas the non-fighter actively bugged out, overreacted or withdrew psychologically. Such a study, however, was very difficult and had its drawbacks, such as the possibility of bias in both experimenters and subjects.

There was no way of determining which of the observed and measured post-combat differences between fighters and non-fighters had existed before the men went into combat... also the combat performance of the individuals in the sample may itself have been the result of transient characteristics.³⁸

The Israeli Defense Forces (IDF) uses a screening system for their recruits which will result in a "Quality Group Score" (in Hebrew - "Kaba" - an acronym for quality category). The four components of Kaba are:

- a. An intelligence evaluation score.
- b. Level of formal education.
- c. Command of the Hebrew language.

d. A motivation-to-serve index.

These were the four factors that comprise those measurable attributes relevant to potential fighters. A study of the system shows that the higher the conscript's quality, the greater the probability that he will end up serving in a command position as an officer or NCO.³⁹

A different approach was adopted by the German Army of World War II. It did not systematically attempt to study intelligence in their officer recruiting system. This was done based on the assumption, as the Truppenführung puts it, that war is a matter of character above all.⁴⁰ Although Stouffer et.al. (1949) noted that during the second World War the better educated men, along with men with the highest classifications and the highest mechanical aptitude test scores, older men, married men tended to give better combat performance ratings. No clear procedure existed to determine a man's "intangible" potential as a fighter or a combat leader in the U.S. Army during World War II.⁴¹

6. National Characteristics

If on Clausewitz's term, war is a continuation of policy, could it be assumed that national characteristics play a dominant role in motivating the soldier? Soldiers of different nationalities almost always have a similar behavior pattern. Differences in national characteristics are nuances which affect the basic motivation in a marginal way only.⁴² The way it affects the unit is due to the

reason that the ability to maintain unit integrity while performing effectively under stress is strongly influenced by the external environment. In a modern world with rapid development in communication technology, war and society have strong reciprocal effects. The people at home will have a picture of what is going on in the war zone, while the soldiers in the war zone will know how the public opinion at home supports his effort. Those factors will lead to a state of mind to judge whether the risk and sacrifices involved are worth taking or not. Such areas of studies have not been widely conducted in western societies. The traditional approach to study combat most of the time has been in the area of weapon systems, cost effective analysis and troop levels, rather than indicators of combat effectiveness related to the political psychological factors and motivations that are essential for military cohesion. In a study that came out of the Vietnam conflict a theory holds that

Combat motivation stems from a soldier's involvement with his national socio-political system. The soldier's commitment to the values and the symbols of his larger society as to a specific cause are seen as major determinants of his will to fight.⁴³

The study led to two questions that needed to be answered. First, does the ideologically committed soldier tend to be an effective soldier, and second, whether an effective soldier necessarily has to be ideologically committed?

A survey conducted during World War II resulted in answers that only 5 percent of the enlisted men and 2 percent of the officers chose idealistic reasons such as: making a better world, crushing aggressors, and belief in "what I'm fighting for" as the most important combat incentive in keeping them fighting.⁴⁴ The defense of one's country can constitute an additional motivation, but it does not depend on ideological or political beliefs. It depends on the importance of the people back home to the soldier and it affects willingness to enlist. Contrary to the image of the importance of propaganda in the German Army in World War II, empirical evidence exists that ideological Nazi indoctrination did not affect the troops as it intended to be. It was a matter of who said it rather than what is said. The average German soldier of World War II did not fight to gain social prestige, he did not fight out of a belief in Nazi ideology:

...He fought for the reasons that men have always fought: because he felt himself to be a number of a well-integrated, well-led team, whose structure, administration and functioning were perceived to be ... equitable and just.⁴⁵

In the aspect of how societal support contributes to the will to fight of the soldiers, an interesting trend developed in the case of the Israeli Defense Forces. The knowledge of what an Israeli soldier would fight and die for is the underlying theme of "Ein Breira" or "no alternative," which exists in the consciousness of every Israeli soldier.

This vivid sense of "fighting for your home and country" is not just a patriotic slogan for the Israeli soldier. But the war in Lebanon in 1982 brought a deviation from this concept. For the first time in its history, the IDF launched an offensive not in response to an actual attack threat to the existence of the state of Israel. The issue of the perceived legitimacy of that war by the soldier becomes a crucial factor concerning morale and combat readiness.

The positive correlation between the IDF soldiers' morale during the alert calls in the Golan Heights in the spring of 1981 and their perception regarding the justification of the preceding incursion into Lebanon could have served as an early indication of the serious legitimacy problems that indeed arose later in the Lebanon War.⁴⁶

What then are the national characteristics that contribute to the fighting power of a military force? Is it their culture? The Germans were not considered as outstanding soldiers before the middle of the last century. The Vietnamese, who were seen as useless by the French before 1939, decisively defeated those same overlords in 1954. And what was the difference between North and South Vietnam, a nation of the same culture, but one was utterly useless and the other went on to fight to achieve their national objectives for another two decades? The Arab defeat of 1967 called into being a character known as the "amoral familist" whose nature was perceived as useless to cooperate with others; in 1973 the Arab armies fought

deviating from the 1967 perception.⁴⁷ It is of value to put the definition of national characteristics into a perspective of the time frame where the subject exists. National characteristics in this context are not permanent in nature, but relative to the political and value systems in practice in that society during the subject time period. For that reason, we must be careful in using cross national comparisons, because they can easily be misinterpreted. To examine combat efficiency in terms of US-Wehrmacht-Israeli-Vietnamese comparisons without linking these to the societal and environmental imperatives is simplistic and unidimensional. Generally

Military cohesion is greatly facilitated when there is national consensus about the defense establishment, or at least when there is no heated national debate over the military purposes. National divisions about military purposes has a direct link to the degree of military cohesion.⁴⁸

Bear in mind, however, that the political system in effect, and its causal relationships with national consensus is beyond the scope of this study. As far as the implications of national characteristics, in the context of national support derived from its political system, called "ideological motivation" as described by Slien:

Ideological motivations are likely to contribute more persistence than to élan, particularly in prolonged periods of static warfare. A man motivated by ideology is likely to be more well armed against demoralization. ...such a man also impede the spread of demoralization among those around him... however, a loss of faith on the part of ideologically committed soldiers makes them prone to demoralization.⁴⁹

D. Negative Factors Affecting the Human Dimension of Combat Power

After examining morale factors that could increase combat power, let us now discuss the morale factors caused by battlefield environment that could decrease combat power. Is casualty a dominant factor that adversely affect combat power? The framework of combat analysis has always been the actions of a force in its endeavor to defeat its opponents. Consequently, the study of combat has primarily explained the process which produced casualties. Theories to seek insight into the affects of casualties to combat power are few. Thomas L. Livermore in his book, Numbers and Losses in the Civil War, discussed the analytical significance of relating casualties suffered by one side to the numerical strength of the other in percentage,⁵⁰ while Frederick G. Lanchester, the British theorist, expressed the mathematical processes of World War I in terms of casualties.⁵¹ In his attempt to seek an answer to the influence of casualty rates in a measure of defeat, McQuie concluded that there seems to be no pattern of influence between casualty rates and outcome of battles.

No matter how casualties are measured, battles have been given up at last when casualties ranged from insignificant to overwhelming.⁵²

His study covered the areas of the proportion of troops lost, the casualty rates, total loss of one side compared to

the enemy and the effect casualties have on force ratio, which neither proved to be fruitful.

Clark's study into casualties as a measure of the loss of combat effectiveness of an infantry battalion in World War II came up with the following conclusions:

- a. The statement that a unit can be considered no longer combat effective when it has suffered a specific casualty percentage is a gross simplification not supported by combat data.
- b. Casualties can be taken as a significant measure of loss of combat effectiveness only if specified within the proper defining factors:
 - (1) The type and size of unit.
 - (2) Ranges of less percentage rather than average should be used.
 - (3) The nature of the unit's mission.
 - (4) The time basis on which loss percentages are figured.

A survey of casualties and casualty rates in World War II and the 1973 Middle East War made by HERO,⁵³ demonstrates that casualty rates vary greatly from one engagement to another. Casualty rates have to be analyzed in terms of two major kinds of considerations:

- a. The intensity of combat, which is the level of battle violence. The intensity of combat appears to be responsive to force-related combat variable

influences such as the relative combat effectiveness of the opposing forces, the existence of surprise, mission, relative combat power, and the state of will of the opposing sides. The intensity of combat is measured in terms directly proportional to the rates at which casualties are incurred by that force.

- b. The tempo of combat, which is the pace of combat activity reflecting influence exerted by environmental circumstances. It is influenced by environment related combat variables such as size of force, terrain, rapidity of movement, weather, state of troops freshness, and time. The tempo of combat is measured in terms of casualty deviations from otherwise normal activity by either or both forces.

From the other point of view, HERO research suggested that there is a tendency of declining casualty inflicting capability during periods of sustained combat, but tends to recover during inactive combat period.⁵⁴ Although the casualty inflicting rates tend to be higher for the attacker than the defender, it was also evident that in World War II, whether attacking or defending, successful or unsuccessful, German casualty inflicting rates were consistently higher than those of the Allied Forces. Similarly, those of the Israeli forces tended to be higher than the Arab forces under similar circumstances.⁵⁵

With no significant pattern of influence between casualties and battle outcomes, the answer as to what contributes to a force disintegration has to be sought from other factors. The use of maneuver by the enemy seems to be a significant factor, present in 64 percent of the cases studied by McQuie (Figure I).⁵⁶

FIGURE I

REASONS FOR A FORCE ABANDONING (ATTACK OR DEFENSE)

1. Maneuver by Enemy		
Percent		
a. Envelopment, encirclement, penetration		33
b. Adjacent friendly unit withdrew	13	
c. Enemy occupied terrain		6
d. Enemy achieved surprise		8
e. Enemy reinforced	<u>4</u>	
	Total	64
2. Firepower by Enemy		
a. Casualties or equipment losses		10
b. Heavy artillery and air attacks	<u>2</u>	
	Total	12
3. Other Reasons		
a. No reserves	12	
b. Supply shortages	2	
c. Truce or surrender		6
d. Change in weather		2
e. Orders to withdraw	<u>2</u>	
	Total	24

He concluded that

recognition of defeat appears to have arisen from a look toward the future and an enemy's potential capabilities rather than toward the past and the casualties he has inflicted.⁵⁷

Contributing factors to the loss of combat effectiveness of a force that became evident in Clark's study are:

- a. Condition of troops at the beginning of the engagement (training, experience, strength), including elements such as:
 - (1) Duration of combat experience.
 - (2) Length of service in an inactive sector prior to the engagement.
 - (3) Nature of the unit's latest combat experience.
 - (4) Number of new replacements in the unit.
 - (5) Terrain and climatic adjustment.
- b. Existence of environmental stress.
- c. The imperative of the assigned mission. The degree of urgency of the mission may be assumed to influence its determination to carry out the order. It may be suspected that as long as the unit is a well-integrated group, morale would be high, but as soon as disorganization sets in, self preservation becomes the overpowering motive for each individual.
- d. Morale:
 - (1) The emotional set of troops toward what they believe to be the purpose of war.

(2) Esprit de Corps: Unit pride and self-confidence.

e. Leadership

Leadership at lower level may probably be more significant than leadership at battalion level or above. If small unit leadership is strong, the unit may continue to fight in spite of isolation or communication problems with higher headquarters. But if small unit leadership is weak, chaos could result farther to the frontline.

f. Tactical plan, reconnaissance, fire support, intelligence logistical support and communications as products of leadership. Communication is an aspect of significant influence to be mentioned because "drastic failure in communications marked all the breakpoints studied, usually preceding and often contributive but apparently never the decisive factor."⁵⁸

In his study of historical analysis of two unit collapses in 1918 and 1944, Major McGinnis revealed that there is no single factor which causes a unit to collapse. A unit collapses because of a number of interactive forces which are casualties, experience, command, control and communications, leadership, tactical employment, enemy actions, terrain and weather. Poor communications between vertical headquarters resulted in an inaccurate and misleading situation being portrayed at higher headquarters.

It contributed to the pushing of regiments beyond their breaking points and corps pushing divisions to the point of collapse. Also the regiments had to fight their battles without the support of the division. In leadership, the rapid and frequent relief of commanders within the 35th Division had adverse impact on unit training. Poor tactical employment, estimation of the enemy and use of terrain and weather to tactical advantage could all be seen as products of leadership in the context of human elements of command.

We may conclude, therefore, that there are no specific factors that significantly have adverse affect on combat power. If a force loses human dimensional combat power, it refers back to those same human elements that can positively affect combat power. The human elements can result in increasing or decreasing combat power.

E. The Influence of Human Elements on Combat Outcomes

We have discussed morale factors that could increase or decrease combat power. But how significantly can those morale factors affect the outcome of combat? We will now turn to history and through previous studies discuss combats and seek historical justification to answer the question. One of the main theories of combat is the three-to-one ratio planning factor. In other words, an attacker needs a three-to-one strength superiority over the defender in order to win. Dupuy elaborated the three-to-one rule as a model of

combat. Based on the spectrum of the combat outcome, the model is divided into three zones. On the left column where the model predicts attacker's success, is the zone where the attacker has 300 percent or more strength superiority over the defender. The column on the right depicts the counter-extreme, where the model predicts the defender's success, is the zone where the attacker's superiority is 150 percent or less. In between is the zone of uncertainty. (Figure II)⁵⁹

FIGURE II

THE THREE-TO-ONE MODEL OF COMBAT

PERSONNEL STRENGTH RATIO	ATTACKER'S SUCCESS	OUTCOME UNCERTAIN	DEFENDER'S SUCCESS
Attacker to Defender Ratio	300% or more	± 200%	150% or less
Defender to Attacker Ratio	33% or less	± 50%	67% or more

The question that comes up next is, what is meant by "force" in force ratio planning factor? Is it personnel strength, total weapon systems, firepower or units?

In any event, it is clear that neither numbers nor firepower tells us much unless we know the circumstances under which these numbers face each other, and the manner in which the firepower is applied.⁶⁰

Numbers regarding combat power was also addressed by Clausewitz. "In tactics, as in strategy, superiority of numbers is the most common element in victory."⁶¹ It was this doctrine that was mainly used as a basis in the

traditional approach in the study of war. But Clausewitz also proceeds further

Superior numbers, far from contributing everything, or even a substantial part to victory, may actually be contributing very little, depending on the circumstances.⁶²

It was Dupuy's interpretation that the three-to-one ratio planning factor was incomplete because it considered only the physical tangible combat power and ignored the other two general considerations mentioned in "Clausewitz's Law of Numbers: the circumstances of the battle and the respective quality of the opposing forces. It is to these aspects that Dupuy refers as the circumstantial variables of combat consisting of combat which covers environmental, operational and behavioral variables. These variables are the human elements and products of human elements affecting combat outcomes.

Based on history, there were attacks in which the attacker was successful without having any three-to-one superiority in the tangible physical combat power sense. Among others: at Austerlitz in 1805 the French with a strength of 75,000 attacked the Allies with a strength of 89,000. The French came out as victors, although having the strength ratio of 0.84. In the battle of Antietam during the Civil War in 1862, the Confederates won a tactical victory over the Union through a strength ratio of 0.56. In the battle of Arras in 1917, the Germans succeeded in the defense against the British with a ratio of 0.45. In the

battle of Flanders in 1940, the Germans came out as victors in the offensive operation against the Allies with a ratio of 0.85. In 1967 in the Sinai, the Israelis defeated the Egyptians with a strength ratio of 0.55. The overriding influence of human elements on combat outcomes do not necessarily have to be reflected on forces that fought outnumbered and won but can be seen by the overwhelming superiority on the side of the victors, which was forced by the other side. Out of the 42 battles listed by Dupuy, the successful side consists of 28 attackers and 14 defenders. Out of the 13 numerically inferior attackers, 12 of these were successful, and out of the victors, 18 or 43 percent were numerically superior, and 24 or 57 percent were numerically inferior.⁶³ (See Appendix D)

Dupuy, through his Quantified Judgement Model Analysis, addresses those factors outside the tangible physical as combat multipliers. The principal force multipliers used are the factor values that represent the effects of terrain, posture, mobility, surprise and relative combat effectiveness. Relative combat effectiveness (CEV) is actually a translation of Clausewitz's troop quality. The CEV is based upon intangible behavioral variables and is a discernible value for the effects of all of the intangibles in combination on combat outcomes.⁶⁴ It is not the pretence of this study to go deep into the analysis of the QJMA nor to seek a method of quantification of the human

elements in combat, but it lends a method to approach on historical justification of the overriding influence of human elements on combat outcomes:

Surprise and combat effectiveness are force multipliers that potentially can yield the most return in response to command skill, for they are controllable by the commander to a considerable degree. Surprise may not always be achievable... Combat effectiveness, however, is something about which a commander can do a great deal, particularly in training of troops and in the honing of subordinate leadership skills.⁶⁵

In the Battle of Austerlitz, Napoleon was victorious while fighting outnumbered against an allied army of Austrians and Russians. Dupuy contended that the principal factor of the victory was the French relative combat effectiveness, and that a major element of that is the superiority of Napoleon's generalship. Other multipliers were tactical surprise and a slightly superior tactical mobility, which were also products of Napoleon's generalship. Almost similar circumstances existed in the battle of Antietam, and the differential was solely that of Lee's generalship. In the battle of the Chinese Farm in 1973, General Adair's division attacked the Egyptians to restore communications with General Sharon's division. Although the Israelis were outnumbered five to four, they had the substantial advantage of air support, plus the force multiplier of a surprise counteroffensive and a combat effectiveness superiority. But the initial phase of the 1973 Middle East War shows the application of force

multipliers by the Egyptians in the crossing of the Suez Canal by the Egyptian Second Army on 6 October 1973. The Egyptians applied the multipliers of surprise, careful planning and rehearsing for the set-piece battle.⁶⁶ The most important attacker force multipliers in 14 breakthrough operations that took place between 1918 and 1967, studied by HERO, were relative combat effectiveness, battle mobility, air superiority and surprise.⁶⁷ It is not difficult to see that human elements have significant roles in those multipliers and have overriding influence on combat outcomes.

F. Conclusion

Chapter III starts the study with the combat environment. The combat environment creates a situation of fear, which in turn may lead to a psychological state of stress. While creating stress, the combat environment can also create features which build social integrity and strength among soldiers. Stress and social integrity may have influences on combat power.

The factors of the combat environment that may affect the human dimension can affect it in two ways. They can increase combat power, and they can decrease combat power. Factors that can increase combat power can be categorized into six major groups which are leadership, training, experience, cohesion, manpower quality and

national characteristics. The search for factors of the combat environment that may decrease combat power revealed that there seems to be no pattern of influence between casualty rates and combat outcomes and that those factors have to be sought from non-casualty factors. The factors that became evident were

a. Condition of troops at the beginning of the engagement.

b. The existence of environmental stresses.

c. The imperative of assigned missions.

d. Morale.

e. Leadership.

f. Tactical and administrative plans as products of leadership.

It was revealed that unit disintegration would be a function of the combined value of human element factors.

In seeking historical justification on the effects of human elements on combat outcomes, historical data exists on forces who fought with less than the three-to-one ratio planning factor and yet accomplished their missions. When a smaller force is successful, this is because its numerical strength has been multiplied by physical or behavioral factors peculiar to that battle and the forces engaged in it.

In the next chapter we will address the commander's estimate as a tool for decisionmaking and the integration of the human elements into the estimate.

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23. Stouffer, p. 70.
24. In the Mediterranean, enlisted men were from a cross section of line infantrymen in four infantry divisions surveyed in Italy in April 1945. The officers were from a cross section of company grade officers in two divisions which fought both in Africa and Sicily, surveyed in April 1944 at the same time that the enlisted men and officers in the Pacific were surveyed. In the Pacific enlisted men were from a cross section of veteran infantrymen in three infantry divisions surveyed in March-April 1944. Officers were from the same divisions surveyed concurrently. Stouffer, pp. 71-72.
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CHAPTER IV
CONSIDERATION OF THE HUMAN ELEMENT
IN THE COMMAND ESTIMATE

War is an impassioned drama and in no way a
mathematical operation.

Antoine-Henri Jomini

A. Introduction

Chapter III explained the previous works regarding the reciprocal influence of the human element and the battle environment, and how human elements affect combat power. Within the combat environment, the human element can increase or decrease combat power. Chapter III identified the human element factors that affect combat power in six major groups, i.e., leadership, training, experience, cohesion, manpower quality and national characteristics. Unit disintegration would be a function of the combined value of human element factors resulting from the failure of those factors to overcome battlefield stress. Chapter III also identified the overriding influence of the intangible human elements over tangible physical elements on combat outcomes by studying historical data on outnumbered yet successful forces.

Chapter IV deals with the command estimate and the integration of the human element into the command estimate. The command estimate is a tool for the commander to make a decision on a specific course of action to accomplish a mission. Emphasis is placed on the nature of the command estimate and the requirements to be met to enable a commander to arrive at a sound military decision. The second part of Chapter IV discusses the indicators of human elements which could be used to build a conceptual model to evaluate the influence of human elements on a unit's performance. It is the integration of the human element factors into the command estimate.

B. The Command Estimate as a Tool for
Military Decision Making

Although FM 101-5 Staff Organization and Operations states that military decision making is both an art and a science, it does not clarify what characterizes military decision making as an art and what characterizes it as a science. As a contrast, the Soviet Army bases its doctrine on the central theorems of Marx-Lenin, one of which is that war is governed by laws expressing its unique nature, and that success will come to those who apply these laws, failure to those who violate them. As a result, decisions are made based on norms that the commanders have to meet. This will very likely limit the degree of flexibility on the part of the Soviet commander.¹ The United States Naval War College

addressed that the accepted body of knowledge as a result of accumulation of years of information from which conclusions have been drawn as to the causes of success and failures of past military operations constitutes the basis for the science of war. For that

Scientific investigation - that is, the collection, verification, and classification of facts - follows the recurrent procedure of successive analysis, hypotheses, theory and test.²

It stated further that such a scientific analysis has for its chief practical aim the improvement of the art, or practice of that subject. The art of war would be the application of the science of war to actual military situations. The relationship between the science and the art is that the more inclusive and dependable the body of knowledge available as a basis for action, the more probable it is that the application of this knowledge, the art, will be effective.³ How sound a decision can be depends on the professional judgement fortified by knowledge and founded on experience, while judgement is

The ability to understand the correct relationship between cause and effect, and to apply that knowledge under varying circumstances.⁴

The combat environment also has its influence upon a commander. It affects:

- a. The desire for love, friendship, sympathy, recognition, respect and power.
- b. Stress narrows the ability to perceive.
- c. Extended periods of pressure lead to overreaction.

d. Fear and exhaustion reduce the willingness to make decisions at all.⁵

Group unity means little for the leader as a decision maker. That is why mental power is a recognized essential component of fighting strength, because it is the source of professional judgement. It includes the ability to solve military problems in peace and in war and to arrive at a sound decision.⁶

To assist in applying logical processes to the problems of human life, the relationship between cause and effect is expressed in principles. A principle is a true statement of a relationship between cause and effect. In formulating principles as practical guides for action, all pertinent factors have to be considered. Each factor in each situation has to be weighed in connection with the others. The soundness of the conclusions will depend on the extent of the knowledge available. The U.S. Naval War College addressed four fundamental truths in the analysis of the natural mental process in decision making:

1. That a valid rule, or principle, when complete, enhances all known phenomenon pertinent to the relationship established.
2. That the logical application of principles to particular incidents will take account of all the factors of the principles, and of all known conditions of the incidents.
3. That such principles afford great assistance in arriving at sound conclusions, and that the human mind, if without access to such valid guides, tends to adopt faulty rules in the effort to serve the same purpose.

4. That rules of action, however, even though they be valid, cannot be depended upon to replace the employment of logical thought.⁷

It is because of a such a variety of human characteristics and levels of combat experience that General Ridgeway concluded that "troop control is more an art than a science." How a commander or staff officer arrives at a decision is a matter of personal determination. A systematic approach assists in applying judgement, logic and professional knowledge of the task. FM 101-5 addresses the logical and orderly process consists of:

- a. Recognizing and defining the problem.
- b. Collecting the important facts and making assumptions to determine the scope of the problem.
- c. Developing possible solutions.
- d. Analyzing and comparing possible solutions.
- e. Selecting the best solution.⁸

The command estimate consists of the commander's estimate and the staff estimates. The staff estimates analyze the influence of factors within the staff officer's functions on the accomplishment of the mission and result in recommendation of the most favorable course of action viewed from the staff officer's function's point of view. The staff estimates consist of the personnel, intelligence, operation, logistic and other staff estimates that may be required. The commander's estimate is an estimate prepared by the commander based on personal knowledge of the situation and staff

estimates, resulting in a decision on how to accomplish the mission.

The estimates that include a discussion pertaining to the reciprocal affects between the human element and the combat environment are:

a. The Personnel Estimate.

Paragraph 2e Troop Preparedness Situation addresses the organizational climate. It covers aspects of human elements of own forces such as physical combat stress, effectiveness of communications within the chain of command, morale, motivation, confidence, trust, cohesion, esprit de corps and teamwork.

b. The Intelligence Estimate.

The intelligence estimate analyzes the enemy situation. Paragraph 2c Other Characteristics, may address those characteristics considered pertinent. Paragraph 3e Peculiarities and Weaknesses may address enemy peculiarities and weaknesses of the enemy, a.o. personalities of leaders or principle staff officers. From the two estimates above, we can conclude that there is already an awareness of the human elements. The Personnel Estimate considers the human elements of own forces, and the Intelligence Estimate considers the human elements of enemy forces, however, the human element factors of the opposing forces is never put into comparison to consider the relative value or to consider its affects on each respective combat power. The elements of

leadership and human factors are not considered in their relationship to combat power but rather as a subsystem of personnel management.

c. The Estimate of the Situation.

In the commander's estimate of the situation and the operations estimate, relative combat power of the opposing forces is analyzed in the steps to develop a course of action. Relative combat power is the overall relationship of the combat power of friendly versus enemy forces including significant strengths and vulnerabilities. But the combat power applied here is limited to the physical tangible aspects only.

The basic factors of combat power are maneuver units and supporting fire units. Other combat multipliers may also be used.⁹

While FM 101-5 addressed:

...The basic factors of combat power are maneuver units and supporting fires. Additional factors that might be considered are deception, mobility, terrain, dispositions, weather, logistic support, psychological operations and electronic warfare. These factors do not always apply to any particular situation...¹⁰

Although the two references above address combat multipliers they did not seem to emphasize the importance of the human element influence on combat power and the outcome of the battle. This is inconsistent with the "science of war" with the following reasons:

a. Human elements have an overriding influence on the outcome of combat. There have been cases in history where

forces fought outnumbered and won battles. In each case the numerically outnumbered but winning side had the benefit of one or more combat multipliers.¹¹

b. A valid rule when complete embraces all known phenomenon pertinent to the relationship established and that the logical application of principles to particular incidents will take account of all the factors of the principles and of all known conditions of the incidents.¹²

c. The Command Estimate to be able to arrive at a sound decision, has to embrace the systems of combat, covering:

1. The major process that occurs is combat.
2. Major factors that influence combat outcomes.
3. Define cause and effect relationship away combat force elements and battle processes and factors.
4. Relate combat elements at the start of battle to the outcome of battle based on historical data.¹³

d. FM 100-5 Operations addressed competent and confident leadership as "the most essential element of combat power."

In the final analysis and once the force is engaged, superior combat power derives from the courage and competence of soldiers, the excellence of their training, the capability of their equipment, the soundness of their combined arms doctrine, and above all, the quality of their leadership.¹⁴

Compare it to the Soviet view:

The correlation of forces and means is an objective indicator of the fighting power of opposing sides, which permits a determination of the degree of superiority of one of them over the other.... For a more objective determination of the correlation of forces and means, the following are also taken into account: the peculiarities of organizations of each

side's forces, their levels of combat training, the national composition of the forces, and their morale and fighting qualities, experience in conducting combat operations, firmness in troop control....¹⁵

No military thinker or theorist has ever doubted the power of the human element in combat. Napoleon said that "the moral is to the physical as three is to one." Carl von Clausewitz recognized that "the moral elements are among the most important (in war)." He also cautioned that

In formulating any rule concerning physical factors, the theorist must bear in mind the part that moral factors may play in it; otherwise, he may be mislead into making categorical statements that will be too timid and restricted, or else too sweeping and dogmatic.¹⁶

Most modern military judgement would tend to accept some such relationship between moral and physical factors in combat. However, the procedure set in the command estimate has ignored human factors considerations. The reason may be due to the difficulties encountered in establishing a satisfactory procedure for measuring the impact of human behavior in combat.

FM 100-5 Operations is the capstone for the AirLand Battle doctrine. It states competent and confident leadership as the most essential element of combat power. Although the human element is not mentioned in FM 101-5 Staff Organization and Operations and ST 100-9 The Command Estimate, there is already an awareness of the human elements. In regard to combat planning ratios, ST 101-9 states "these ratios consider terrain and mission, but not

weather, initiative, surprise logistics or combat effectiveness intangibles (leadership, training, morale and skill)." This inconsistency proves as a disconnect in doctrine, mostly associated with the intangible variables of combat power. The doctrinal disconnect is especially found in the estimate of the situation where the analysis of relative combat power does not sufficiently consider leadership and the results of the leadership process as part of the combat power dynamics. The definition of competent and confident leadership should also be studied.

C. Analysis of Human Elements Indicators in Combat

After having explored the nature of military decisions and the command estimate as a tool for the commander to make decisions, the study will now attempt to construct an analytical model of human elements in combat. The model is constructed based on findings of previous discussions made in this study and is supposed to function as a tool to identify the state of human elements of a force in combat drawn from the pattern of the human dimension in a combat environment.

Human conduct does not lend itself to analysis as readily as do mathematical and physical phenomena... reactions of the mind of man have not yet proved to be susceptible of reduction to exact formulae. Nevertheless, man, in his intuitive search for valid guides for his own action, has been able, with the advance of time, greatly to improve his own lot through the medium of the scientific approach to human problems.¹⁷

It is only a model, since much of the enemy data will be drawn from the intelligence preparation of the battlefield, and the analysis is made through a subjective qualitative judgement. On the basis of subjective judgement, a conclusion is drawn concerning correspondence of the situation to one of the patterns known by experience or theory, or a given situation is similar to several patterns or an absolutely new one. The model has a universal applicability, which means it could be applied to own forces as well as to the enemy's forces. But because it is based on the extent of information available, when applied to the enemy's forces it is subject to how much intelligence could be gathered pertaining to the information required. Some aspects could have such a low significance to combat, such as manpower quality, that there is no need to take into consideration of such detail, or there could be substituted an assumption. We will now address the six major groups of human element factors that we have identified in Chapter III, by identifying indicators of those factors in the field to construct a model.

1. Leadership

To make a judgement of how the human element of leadership attributes to the combat power of a force we seek to identify the following indicators:

a. Background education and experience. The universal philosophy of military education is to prepare the soldier to

perform his function in accomplishing the mission. It is, therefore, reasonable to expect a better leader if he is better educated in the field relevant to the operation, compared to leaders with lesser education. Experience would have the same effect, even can have better effect, for experience lies closer to reality than education.

b. A significant indicator in the previous experience of a leader is previous success as a combat leader. No combat situation can be similar, but knowledge of a leader's previous success, to some degree may indicate a proven ability in his use of his thought process in a proper manner. Success will generate its synergistic effect on combat power, for "nothing succeeds like success."

c. The length of time a leader spends with a unit may increase his leadership effectiveness. He would have the time to be familiar with the characteristics of the unit, structurally within the organization or psychologically with his soldiers. There are factors to be considered that may affect a leader to reach the culminating point in his length of time of stay with the unit. As long as a leader perceives that he is not subject to a lesser comparison to other alternatives, leadership effectiveness to a certain degree could be expected. But as soon as he can perceive a better alternative, or change to his long stay, a diminishing value of leadership effectiveness could be expected.

d. No specific leadership style could be used as an indicator of high morale of a force. There seems to be no direct relationship between leadership style and force morale.

e. Proportionately higher losses in officers than in enlisted men are not characteristic of breakpoints in combat units. Although the contrary may not necessarily mean ineffective leadership, a substantially high casualty rate for officers may reflect leading by example, generating trust and confidence in their soldiers resulting in unit cohesion.

f. No work has been found that studied the effect of shortages of soldiers in key Military Occupational Specialties (MOS). Effects of such shortages may be felt significant in combat support and combat service support units, but going into such depth would be too detailed for a command estimate regarding combat power in the clash of opposing wills. If such a condition should exist, analysis should consider extreme losses for extreme key MOS too valuable for combat units, which would be rather unlikely for any army to take such a risk.

2. Training

The value of training is significant in the early stages of war, when forces have limited experience. As the war progresses, the value of training will diminish. It will not reach a zero-level, but its significance has been overtaken overwhelmingly by experience and leadership. Some

factors that may be useful as training indicators to the contributions to combat effectiveness are:

a. To what extent has the unit been exposed to training in similar combat type operations, terrain and weather environment?

b. How realistic was the training?

c. How did the leaders function and assume their roles in the training?

d. Did the training give the soldiers confidence in their outfit, leaders, weapons, and equipment?

3. Experience

Units tend to gain more experience the longer they are in the combat zone. There is a pattern of combat efficiency that units tend to follow in their combat zone performance. Initially a unit will go through a combat seasoning phase. After having gained experience in the combat seasoning phase, a unit will approach its maximum efficiency. A feeling of over confidence will be the transition for a unit into entering the first part of combat exhaustion, which is the higher reactive stage. The emotional exhaustion stage following will be the second stage of combat exhaustion before being concluded by a vegetative stage (Chart II, page 50). The judgement of the combat efficiency of a unit would also have to consider the comparison of veterans and new replacements. Veterans tend to follow the combat efficiency pattern above, with extensive

experience but a decreasing motivation after having reached their culminating point in maximum efficiency, while new replacements initially tend to have high motivation but low experience. The above pattern would be significant in a unit were exposed to continuous combat. During lulls or periods in which units are not committed to active combat, it will recover previously lost combat effectiveness at a certain rate per day. No study has been found to determine the effects of replacements upon average figures for decline and recovery of combat performance capability. Similar significant influence of experience to morale with leadership indicators is that the best way to achieve high morale in wartime is by success in battle (page 13). Previous combat victories would be more likely considered as combat effectiveness indicators compared to the length of time in combat zone. There seems to be no pattern of influence between specific casualty percentage and the loss of combat effectiveness. A unit collapses as a result of a number of interactive forces. Casualties may have influence on morale when soldiers perceive them as "wasteful." Other factors to be considered in determining human element indicators are:

- a. How long has the unit been in the combat zone?
- b. What was its mission and how was their performance?
- c. Has it been exposed to continuous combat operation?
- d. Did the unit ever suffer a high casualty rate, due to what?

- e. Any previous combat victories?
- f. Is there a consistent pattern of combat efficiency?
- g. How is their preparation for the upcoming operation?
- h. Are they exposed to deprivation of physical needs such as rest, food, water?

4. Cohesion

Within a positive climate, cohesion develops in time. Individuals who have grown to know each other, face challenge. Success in overcoming that challenge together and feeling that their needs are being met are better when they stay in the unit and tend to develop into a strong cohesive force. Whether it is the sense of commitment, or the fear of shame in the event of failure, the fact that soldiers have served with the same team for a sustained period of time all make a unit a major factor in combat motivation. Indicators could be collected from answers of the following questions:

- a. How is the replacement system, by individuals, by small groups, or by units?
- b. How is the recruitment and career system? Does it allow regional small group and unit affiliation?
- c. Has the unit been successful through an ordeal together?
- d. Does the unit have a proud reputation?
- e. Do soldiers feel that their needs are being met better when they stay with the unit rather than affiliate with other groups or setting out of the unit?

5. Manpower Quality.

In manpower quality we seek for certain quality characteristics that make better soldiers. The effects of manpower quality seem to diminish as the war progress. Studies have not yet come to an agreed conclusion as to what qualities make better soldiers. The German Army of World War II saw war as a matter of character above all, while U.S. Army places priority on intelligence. Because manpower quality tends to decrease as the war progresses and is substituted for by experience, cohesion and leadership primarily and that manpower quality considerations are more likely to be given in the recruitment phase before the unit enters the war zone, it would be too detailed for the command estimate to consider manpower quality and its influence to combat effectiveness. Although no clear procedure could be found in studies pertaining to manpower quality, some areas of consideration are:

a. Education level.

b. Recruitment system based on economic, social and educational cross-section of the nation rather than one that includes low capability individuals in sharp disproportion to the general population.

c. Non existence of personal psychological stress.

6. National Characteristics.

Compared to the influence of the small group, broad political and cultural values are not nearly as significant

in explaining why soldiers fight. Nevertheless, "cultural factors are useful in explaining a soldier's motivation and indirectly for building cohesion in small groups."¹⁸ A study of the history of the state may prove valuable by estimating the present condition.

Reactions of various races or groups to the condition of war have been sufficiently recorded on the basis of past performance, to prove of some value.

It is important, however, to link the study to the societal and environmental imperatives within the relevant time period. National characteristics' influence on combat effectiveness appears to change very slowly over time. While a country may expect to coast for some time on the intangibles of troop quality, leadership, discipline, training and tactics, a high level of combat effectiveness, once lost, may be hard to restore. National characteristics are likely to contribute more to persistence than to elan, particularly in prolonged periods of warfare. Questions that may be considered is identifying national characteristics indicators are:

- a. Has there been a consistent combat effectiveness in the history of the state?
- b. Is there a group's sense of common and unique history and shared value?
- c. Does the nation have the primary loyalty of the people?

d. How does the national political system award the military status in the eyes of the society, and how does the fact support the system?

e. How does the soldier perceive the support of the society to their effort?

f. How does the soldier perceive the legitimacy of war? If we perceive the pragmatic aspect of national characteristics to influence combat effectiveness, integration of the military with society and the common ideology with the aims of war may be abstract and not dominant, but "through the link of the soldier with family, friends, they are of considerable importance."¹⁹ A model analyzing pattern of indicators and their influence on combat effectiveness is provided in Appendix E.

D. Conclusion.

Chapter IV has analyzed the nature of military decisions and logical thought as the basis for military decision making. Among the fundamental truths of the natural process in decision making is that a valid procedure, when complete, embraces all known phenomena pertinent to the relationship established, and that the logical application of principles to particular incidents will take account of all factors of the principles and known conditions of the incidents. The commander's estimate is the tool for a commander to arrive at a sound military decision. One of the

procedures established is the estimate of the analysis of relative combat power in developing the courses of action to be analyzed. While FM 100-5 addressed leadership as the most essential element of combat power, FM 101-5 or ST 100-9 failed to address leadership and the human element of combat power as part of the procedure to use the command estimate. This chapter further attempted to establish a pattern to construct a model for the analysis of human elements in combat. The purpose of this model is to identify those indicators that could be used to make a subjective qualitative judgment of the human element status of a force in an upcoming combat action. The factors considered in the model are those six major groupings identified in Chapter III. Chapter V will draw general conclusions that cover the overall analysis of the human elements in combat and the integrated application of those factors in the command estimate.

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CHAPTER V

CONCLUSIONS

The perverse refusal of human beings to fit themselves into consistent patterns of behavior on the battlefield makes the search a long and difficult one. Until a method of determining such patterns can be established, the search for a theory of combat will never be satisfied.

Colonel Trevor N. Dupuy

A. Introduction

In the previous chapter, this study analyzes the logical thought process of decision making and the nature of military decision making as applied in the command estimate. That chapter also constructed a model for analysis of the human elements in combat. The model is based on previous findings, which are the six major groups of human element factors as primary indicators and the processes of human elements in combat to determine the probabilities of the human element status of a force in an upcoming combat. Chapter V will draw the general conclusions resulting from the overall analysis, and how the study responded to the research questions and hypothesis.

B. General Conclusions and Research Questions

Findings of previous chapters tend to support the thesis. The findings identified an inconsistency in the command estimate as a military decision making process, by not clearly addressing the consideration of the human element, as the result of leadership, as part of the relative combat power analysis. Although there is already an awareness of the human elements in the command estimate, it has not been given the importance to be considered in the estimate of the situation. This inconsistency would only retain the nature of doctrinal inconsistency if there were not historical facts on the overriding influence of intangible human elements over the tangible physical elements of combat power. Survey into historical data shows that there seems to be no certain relationship between the size of the force and the combat outcome. Dupuy contended that "in 81 World War II engagements in Europe, the larger force, or a barely outnumbered defending force, is successful about 65 percent of the time." When a smaller force is successful, reasons for its success have to be sought outside physical "number" factors. Research shows that human elements can have an overriding influence on combat outcomes. For this reason the inclusion of a systematic method of evaluating human elements in the command estimate is desirable. It is not the conclusions of this research to say that the behavioral intangible

variables will always have an overriding influence on combat outcomes, but historical facts support that they may have a dominant influence on combat outcomes. Due to that reason, it is desirable that the intangibles be considered in the estimate of the situation. Although such a method would not, by itself, provide assurance to decision makers as true predictors of future combat, such a model would make it more difficult to base major decisions on dangerous assumptions and false conclusions, and would assure the provision of a more consistent output, based on doctrinal consistency.

Findings of the literature survey reveal that there is an interaction between human elements and the combat environment and that leadership is the focal point of determining how human elements react to combat. The survey also reveals that there are human element factors that motivate a soldier to fight and that those factors can multiply combat power or cause a unit to disintegrate. The survey also found that a decision making process has to follow the logical thought process and take account of all factors pertinent to the situation. Leadership is found to be one of the essential factors of combat power.

The study is further broken down into three research questions and reveals the following responses:

1. What are the factors that form the human elements in combat, and how do they influence the outcome of combat?

There seem to be reciprocal influences between the human element and the combat environment. The combat environment creates a situation of fear, which in turn may lead to psychological stress on soldiers. While creating stress, the combat environment can also create features which build social integrity and strength among soldiers. Strength and social integrity may have influences on combat power. Previous works have identified human element factors that can influence combat. While the survey reveals results of works conducted by du Picq, Clausewitz, Lord Moran, Sam Sarkesian, Anthony Kellett, Martin van Creveld, Reuven Gal and Dupuy, using different terminologies and approaches, many of the human elements addressed were overlapping. (See Appendix B) The factors of combat environment that may affect the human dimension can affect it in two ways. They can increase combat power, and they may decrease combat power. Resulting from the analysis of previous studies, factors that can increase combat power can be categorized into six major groups which are leadership, training, experience, cohesion, manpower quality and national characteristics. There seems to be no pattern of influence between casualty rates and combat outcomes, and unit disintegration or decrease of combat power is a function of the combined value of the same, but negative human element factors.

The human elements seem to have overriding influence on combat outcomes. This is supported by historical data of forces who fought with a deviation from the three-to-one ratio planning factor and accomplished their missions. When a smaller force is successful, this is because its combat power has been multiplied by physical or behavioral factors peculiar to that battle and the forces engaged in it. (See Appendix D)

2. Does the present command estimate adequately meet the requirements to enable a commander to arrive at a sound military decision?

The command estimate is a decision making tool for the commander. As a military decision making process, the command estimate is no different from the need to follow a logical thought process. A natural process in decision making is that a valid procedure, when complete, enhances all known phenomena pertinent to the relationship established, and that the logical application of principles to particular events will consider all factors involved. One of the procedures established in the analysis of relative combat power is the estimate of the situation in the course of developing courses of action. While FM 100-5 Operations addressed leadership as the most essential element of combat power, FM 101-5 Staff Organization and Operations or ST 100-9 The Command Estimate failed to address leadership and the human element of combat power as

part of the procedure to use the command estimate. This is concluded to be a doctrinal inconsistency. The command estimate has not met the requirements to enable a commander to arrive at a sound military decision because it does not embrace all pertinent factors that may affect combat outcome. It has not focused the attention of the G-3 and the commander on the human elements of combat power, which will exert such a dominant influence on the outcome.

3. What factors should be used as indicators to evaluate the influence of human elements on a unit's performance in the next battle?

The factors to be considered in analysis of the human elements in combat are the six major groups of human elements that have been identified out of the survey of the literature which acts as the theoretical basis. A judgement of how human elements may influence a unit's performance in the upcoming battles could be sought by identifying the following pattern indicators:

- a. Leadership: Levels of education, previous successes as combat leaders and length of time in present unit are dominant indicators in leadership that may increase unit combat effectiveness. No specific leadership style could be used as an indicator of high morale of a force, proportionately higher losses in officers than in enlisted men are not indicators of unit breakpoint and no work has been found that studied the effect of key MOS shortages.

Such shortages may be felt more significantly in combat support and combat service support units than in front line combat units.

b. Training: Training may be a significant factor in the early stages of the war but will diminish as the war progresses and be taken over by cohesion, leadership and experience. However, some of the indicators are:

- 1) Prior exposure to training in similar type operations, terrain and weather environment.

- 2) Degree of realism in training.

- 3) Functioning of leaders in training to accelerate important points of lessons learned.

- 4) The degree training succeeded in instilling confidence in leaders, weapons and equipment.

c. Experience: The degree of success in performing previous missions, previous combat victories, consistent pattern of combat effectiveness and the preparation for upcoming operations may have a positive influence on combat effectiveness of a unit. On the contrary previous exposure to deprivation of physical needs and perceptions of "wasteful" casualties in previous actions may have negative impacts while the duration of the unit in combat zone may affect positively on combat effectiveness until reaching the psychological culminating point, subsequently diminishing.

d. Cohesion: Depending on the system, replacement and recruitment may have similar effects. A unit replacement

system and a geographical and unit affiliated recruitment system can have positive impact on combat effectiveness, while the individual replacement and recruitment system requires larger time to build the same degree of cohesion as the previous systems. A sustained period of time of personnel stability, having successfully been through an ordeal together, and a feeling of well-being associated with the unit are indicators of factors that may increase combat effectiveness.

e. Manpower Quality. Although manpower quality could be perceived to influence combat effectiveness and may have some effect for force structuring, it is not perceived to be significantly relevant to determining relative combat power in the command estimate, due to these reasons:

- 1) It is conducted at a time way before the battle.
- 2) The effects will diminish and hardly be of any significance as the war progresses.
- 3) No results have been found as to what manpower qualities are required to build an effective combat power.

f. National Characteristics: Factors of national characteristics should be studied in the relative historical period to the present time. This is because national characteristics can change over time, although national characteristics of combat effectiveness appear to change slowly over time, but once lost, they may be hard to

restore. Some indicators of national characteristics that may have positive impact on combat effectiveness are:

- 1) A consistent combat effectiveness in the history of the nation.

- 2) The nation hold the primary loyalty of the people.

- 3) A positive regard to the military profession by the society, as established by the national political system and supported by facts.

- 4) A positive perception by the soldier on the support of the society to the war effort.

- 5) A positive perception by the soldier on the legitimacy of war.

(For Analysis Model, see Appendix E)

C. Relationship to Previous Studies

This study attempted to identify doctrinal inconsistency. For that reason, it bears close relationship to previous studies. Doctrinal references relevant to the study are:

- a. FM 100-5 Operations addresses leadership as one of the elements in the dynamics of combat power.

- b. FM 101-5 Staff Organization and Operations and ST 100-9 The Command Estimate explains the purpose and the use of the command estimate. A publication by U.S. Naval War College, Sound Military Decisions, studied the process required in order to arrive at a sound military decision. The study connects various previous works on the human

elements factors in combat with what command estimate as a decision making tool considering the influence of human elements on combat power of the opposing forces. It attempts to integrate the human element into the relative combat power analysis in the command estimate. While there is previous evidence of works that attempted to identify and quantify the factors that affect the outcome of battle, in the form of Dupuy's Quantitative Judgement Model Analysis as a tool to predict the battle outcome, this study attempts to construct an analysis model for a cause-and-effect process of the human element in combat. This model could be used as a guide to anticipate the state of human element factors of a force in an upcoming combat. The analysis for the model is conducted through a subjective qualitative judgement based on the effects of previous events on the human element process. The study also functions to relate previous studies on single topics such as a soldier's motivation, combat effectiveness, and quantification as a method to seek factors on battle outcomes and relationship of casualties and fatigue to combat effectiveness into an integrated cause and effect pattern of human elements in combat. In conclusion, this study attempts to bridge an inconsistency in doctrine, to bridge previous works into a cause-and-effect pattern of the human elements in combat, and to form a bridge between a theoretical pattern and an operational combat planning tool in the command estimate.

D. Recommendations for Further Study

The preceding analysis illustrates that a variety of interactive human elements may influence battle outcomes, and therefore should be considered in the analysis of relative combat power of the command estimate. But the factors and aspects of combat are so diverse that additional related problem areas beyond the scope of this study which have potential to provide further insight into the subject of human elements in combat should also be studied. The conclusions of this study provide only initial possible explanations for the use of human element cause-and-effect patterns in combat in the relative combat power analysis of the command estimate. The conclusions indicate areas beyond that specific topic which require further study.

An area of possible study is the weight of each human element factor's influence on combat effectiveness. Does leadership have the same degree of influence on combat effectiveness as cohesion? Other things being equal, which force can have better combat effectiveness, a force with moderate training but good leadership or a force with superior training but moderate leadership? By identifying the weight coefficient of human element factors, we could establish a priority ranking of those factors conducive to combat effectiveness.

Another important aspect to study of the human elements in combat is to analyze the correlation between the

degree of human element significance within the spectrum of war. Do the human elements have more significant influence in the low-intensity conflict than the mid- or high-intensity conflict, or the contrary? Why, and how does high-technology affect the influence of human elements in combat? Are the factors that comprise the human element influence on combat similar in both environments or are they different? Why do modern armies tend to encounter difficulties when facing a low-technology guerrilla adversary, has the human element anything to do with the answer? How does nuclear weapons employment influence the human element in combat?

By the results of such studies we would be able to differentiate the value of the influence in each form of war in the spectrum and give a coefficient value to the comparison with the tangible physical elements of combat power, resulting in more reliable analysis model.

In the present study, initial steps have been done in exploring the relationship among national characteristics factors. Although differences in national combat effectiveness from one nation to another are a reflection of professionalism, leadership and training, it is likely that cultural, political and social differences have influenced the quality of combat effectiveness to a certain degree. Is the spirit of "the will to fight" and cohesion more difficult to build in a democratic society compared to an

authoritarian society, or in an affluent compared to a developing society, or in a society with high value placed on individuals compared to a group-oriented society? Has du Picq any reason when he said that although the warrior is still and will be the height of ideals but "the more people rise in moral civilization, the lower this ideal falls," or what did he mean when he said "a democratic society is antagonistic to the military spirit"? The purpose of this study would be to be able to anticipate national force combat effectiveness, and evaluate the potentials of a society with certain national characteristics.

The system of force preparedness today is often related to the breakeven point between threat and cost. A nation that has to live within an environment of immediate threat may choose to maintain a large standing army. A nation with a distant threat may have the "luxury" of time and base its manpower on conscripts. The different systems of maintaining force preparedness lead to the question of the probability of difference between the force consisting of regulars and a force consisting of conscripts. Viewed from the human element's approach, the question becomes: "Are there differences in human element factors that contribute to combat effectiveness between the long period regular soldiers and the short period conscripts? What motivates the long-term service regulars, and what motivates the short-term service conscripts? The purpose of this

study is also to observe the potentials of each system, establish a method to increase combat effectiveness with respective nature and to come to a more reliable model to judge the combat effectiveness of a force.

The role a leader plays in making decisions while being subject to an environment which impacts on the human element is worth looking into. A leader is also influenced by the environment, and while he is required to play his role as decision maker, the environment will produce impacts on the decisions resulted. A study is recommended to explore and seek answers to what human element factors affect the leader in making decisions? How does it impact on the decision and what seems to be the tendency pattern of correlating decisions resulted? What human element conditions constitute the breaking point of a leader as a decision maker? The purpose of this study is to identify the capacity and limits of a leader as a decision maker. Finally, to support doctrinal consistency, a study to define competent and confident leadership is required to be used as guidance to identify the most essential element of combat power.

D. Conclusion

This chapter addresses general conclusions derived out of the overall analysis conducted in this study. The findings tend to support the thesis by providing positive responses to the research questions. The command estimate

should incorporate a systematic method of evaluating human elements in combat, because of the following reasons:

a. There are factors that form the human elements in combat and that have overriding influence on combat outcomes.

b. The present command estimate does not adequately meet requirements to enable a commander to arrive at a sound military decision, for it does not encompass leadership as part of combat power in the relative combat power analysis.

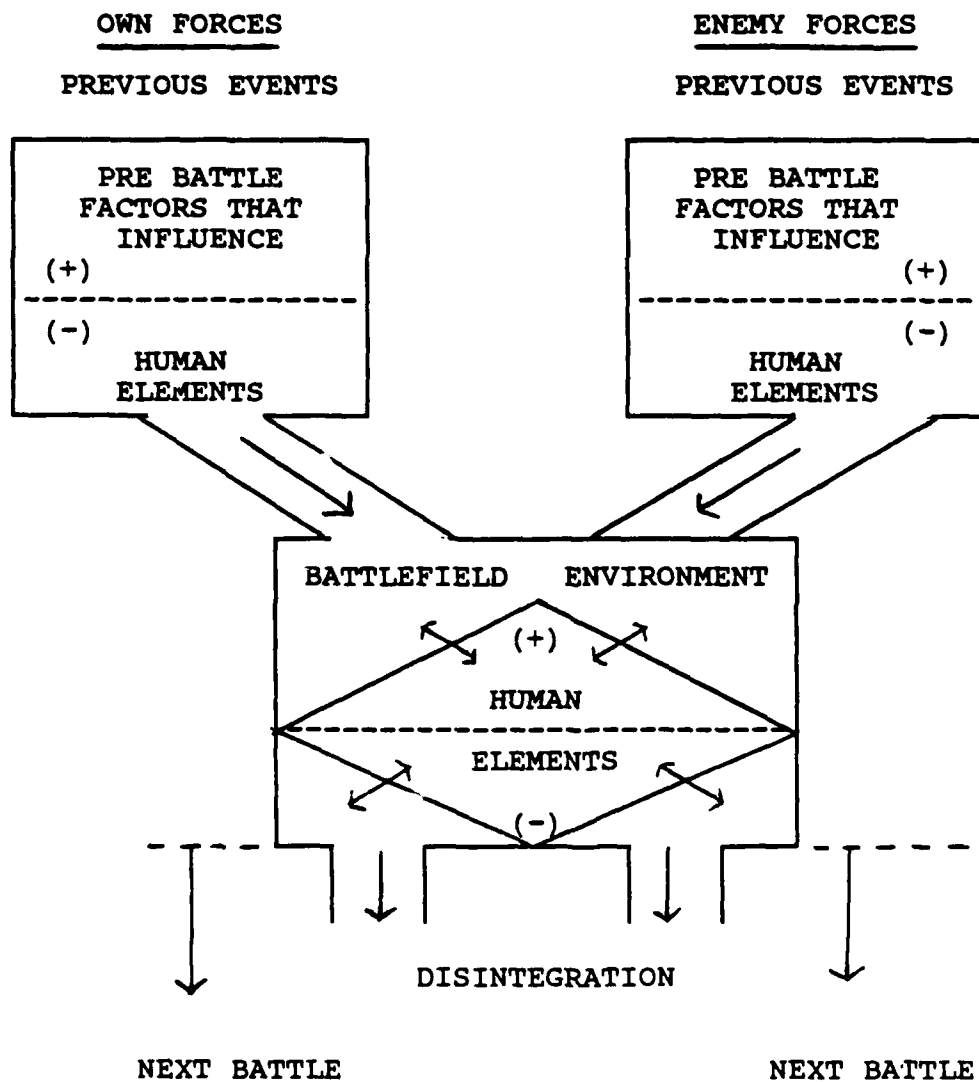
c. Certain factors have been identified and used as indicators to evaluate the influence of human elements on a unit's performance in the next battle.

By identifying the doctrinal inconsistency and preparing solutions to the problem, the study integrates the human elements into the command estimate, thereby eliminating the inconsistency. The study also identified additional related problem areas for further studies.

APPENDIX A

FIGURE III

HUMAN ELEMENTS IN COMBAT: A PARADIGM



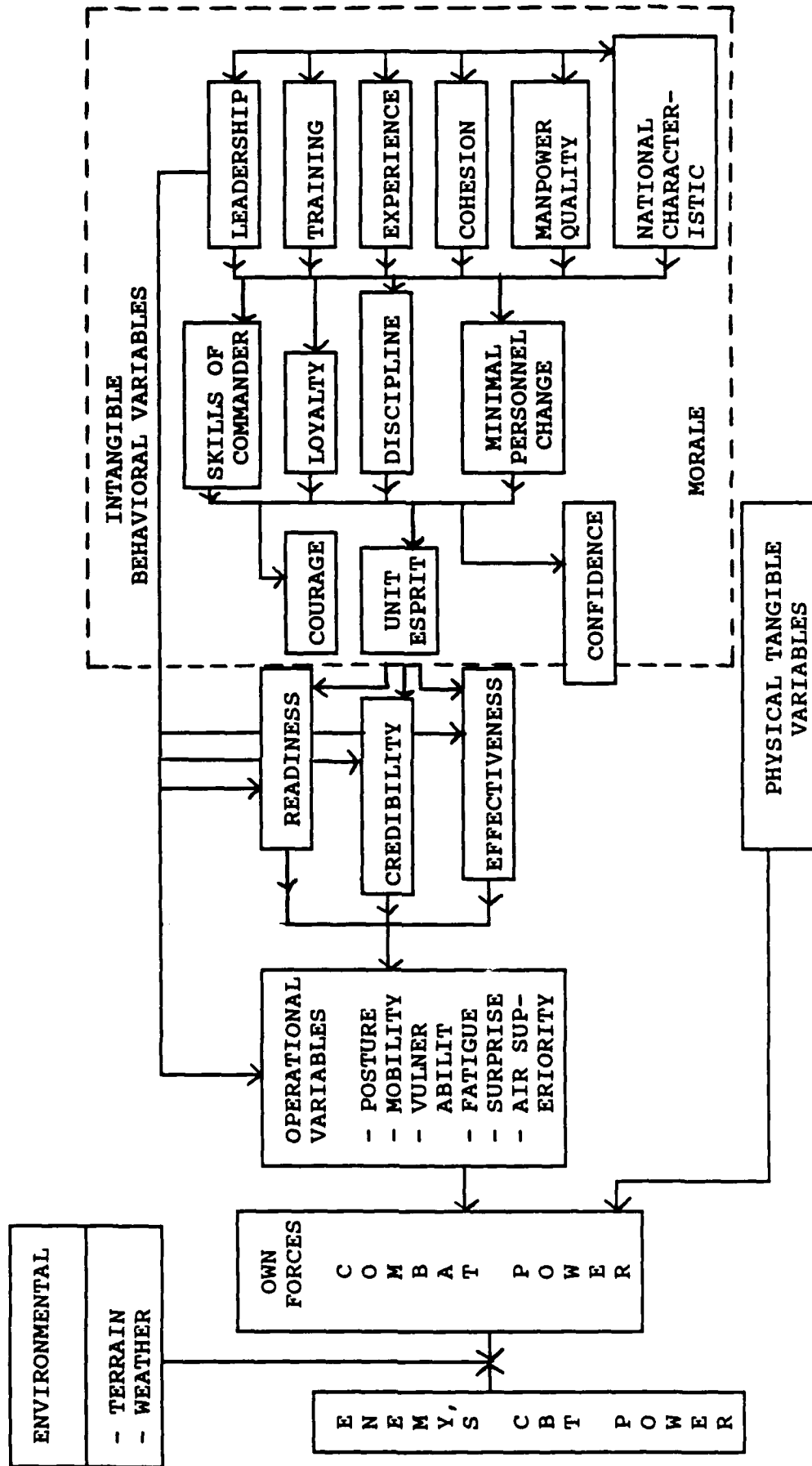
APPENDIX B

FIGURE IV

PREVIOUS FINDINGS ON THE HUMAN ELEMENTS IN COMBAT

DU PLOQ "BATTLE STUDIES"	CLAUSEMINTZ "ON WAR"	LORD MORAN "ANATOMY OF COURAGE"	SAM SARKISIAN "COMBAT EFFECTIVENESS"	KELLEY "COMBAT MOTIVATION"	REUVEN GAL "ISRAELI SOLDIER"	DUFY "UNDERSTANDING WAR"
<ol style="list-style-type: none"> 1. Discipline 2. Unity 3. As little personnel change as possible 	<ol style="list-style-type: none"> 1. Skills of the Commander 2. Experience and courage 3. Patriotic spirit 	<ol style="list-style-type: none"> 1. Selection 2. Discipline 3. The support of numbers 4. Leadership 	<ol style="list-style-type: none"> 1. Readiness 2. Cohesion 3. Effectiveness 4. Credibility <p>William Hauser <u>The Will To Fight</u></p> <ol style="list-style-type: none"> 1. Submission 2. Fear 3. Loyalty 4. Pride 	<ol style="list-style-type: none"> 1. Primary Group 2. Unit Esprit 3. Training 4. Discipline 5. Leadership 6. Ideology 7. Rewards 8. Preconceptions of combat 	<ol style="list-style-type: none"> 1. National 2. Self preservation 3. Small group 4. Leadership <p><u>Components of Fighting</u></p> <ol style="list-style-type: none"> 1. Unit morale 2. Unit cohesion 3. Confidence in commanders 4. Confidence in oneself, team, weapons 5. Legitimacy of war 	<p><u>Environmental</u></p> <ol style="list-style-type: none"> 1. Terrain 2. Weather 3. Season <p><u>Operational</u></p> <ol style="list-style-type: none"> 1. Posture 2. Mobility 3. Vulnerability 4. Fatigue/surprise <p><u>Behavioral</u></p> <ol style="list-style-type: none"> 1. Leadership 2. Training 3. Experience 4. Morale 5. Manpower quality
<p>VAN CREVELD <u>"FIGHTING POWER"</u></p> <ol style="list-style-type: none"> 1. Morale 2. Elan 3. Unit cohesion 4. Internal Organization 						

APPENDIX C
FIGURE V
FACTORS OF HUMAN ELEMENTS IN COMBAT



APPENDIX D

FIGURE VI

HISTORICAL FACTS ON OVERRIDING HUMAN ELEMENTS OF INFLUENCE ON COMBAT OUTCOMES

BATTLE	DATE	ATTACKER*	STRENGTH	DEFENDER*	STRENGTH	A/D+	V/L++
Austerlitz	1805	FRENCH	75,000	Allies	89,000	0.84	0.84
Auerstadt	1806	Prussians	50,000	FRENCH	30,000	-	0.60
Borodino	1812	FRENCH	130,000	Russians	120,000	1.08	1.08
Dresden	1813	FRENCH	100,000	Allies	150,000	0.67	0.67
Deipzig	1813	ALLIES	300,000	French	180,000	1.67	1.67
Ligny	1815	FRENCH	77,000	Prussians	83,000	0.93	0.93
Waterloo	1815	ALLIES	129,000	French	72,000	1.79	1.79
Buena Vista	1847	Mexicans	16,000	AMERICANS	16,000	3.20	0.31
Cerro Gordo	1847	AMERICANS	8,500	Mexicans	12,000	0.71	0.71
Shiloh	1862	Confederates	40,335	UNION	62,642	0.64	1.55
Antietam	1862	Union	80,000	CONFEDERATES	45,000	1.77	0.56
Fredericksburg	1862	Union	106,000	CONFEDERATES	77,500	1.46	0.68
Chancellorsville	1863	Union	161,000	CONFEDERATES	57,352	1.76	0.57
Gettysburg	1863	Confederates	75,000	UNION	88,289	0.85	1.18
Chattanooga	1863	UNION	56,359	Confederates	46,165	1.22	1.22
Cold Harbor	1864	UNION	107,907	CONFEDERATES	63,797	1.69	0.59
Koenigsgratz	1866	PRUSSIANS	220,000	Austrians	215,000	1.02	1.02
Sedan	1870	PRUSSIANS	190,000	French	110,000	1.73	1.73
Frontiers	1914	GERMANS	1,200,000	Allies	1,390,000	0.86	0.86
Tannenberg	1914	GERMANS	187,000	Russians	160,000	1.17	1.17
Marne	1914	ALLIES	1,200,000	Germans	900,000	1.33	1.33
Masurian Lakes	1914	GERMANS	288,600	Russians	273,000	1.06	1.06
Champagne II	1914	French	500,000	GERMANS	190,000	2.63	0.38
Gorlice-Tarnow	1915	GERMANS	175,000	Russians	300,000	0.58	0.58
Arras	1917	British	276,000	GERMANS	120,000	2.24	0.45
Aisne II (Nivelle)	1917	French	1,000,000	GERMANS	480,000	2.08	0.48
Meuse-Argonne	1918	AMERICANS	600,000	Germans	380,000	1.58	1.58
Flanders	1940	GERMANS	2,500,000	Allies	3,000,000	0.83	0.85
Crete	1941	GERMANS	20,000	Anglo-Greek	41,000	0.49	0.49

BATTLE	DATE	ATTACKER*	STRENGTH	DEFENDER*	STRENGTH	A/D+	V/L++
Barbarossa (Kleist Group)	1941	GERMANS	132,000	Russians	150,000	0.88	0.88
Malaya	1941-1942	JAPANESE	60,000	British	130,000	0.46	0.46
El Alamein	1942	BRITISH	177,000	Axis	93,000	1.90	1.90
Stalingrad	1942	RUSSIANS	1,000,000	Germans	800,000	1.25	1.25
Kursk-Oboyan**	1943	GERMANS	62,000	Russians	90,000	0.69	1.45
Anzio, "Bowling Alley" (US 45th Inf Div)	1944	Germans	41,974	AMERICANS	20,496	2.05	0.49
Velletri (US 1st Armd Div)	1944	Americans	14,620	GERMANS	12,327	1.19	0.84
Metz (US XX Corps)	1944	Americans	60,794	GERMANS	39,580	1.54	0.65
Ardennes (US 5th Inf Div)	1944	GERMANS	10,000	Americans	8,634	1.16	1.16
Iwo Jima	1945	AMERICANS	68,000	Japanese	22,000	3.09	3.09
Sinai, Six Day War	1967	ISRAELIS	54,993	Egyptians	100,000	0.55	0.55
West Bank, Six Day War	1967	ISRAELIS	45,650	Jordanians	43,300	1.05	1.05
Golan, Six Day War	1967	ISRAELIS	40,450	Syrians	60,000	0.67	0.67

Summary:

In 42 battles: 28 attackers, 14 defenders were successful.

13 numerically inferior attackers; 12 of these successful.

18 victors were numerically superior (43%).

24 victors were numerically inferior (57%).

* Where both sides attacked (as at Waterloo and Marne), relates to final posture; victor capitalized.

** German XLVII Panzer Corps, first seven days, before arrival of a fresh Russian army group.

+ Attacker/Defender

++ Victor/Loser

Cool Dupuy, Trevor, N. Numbers Predictions and War: Using History to Evaluate Combat Factors and Predict the Outcome of Battles, Fairfax, VA: Hero Books, 1985, p. 14-15.

APPENDIX E

FIGURE VII

A MODEL FOR ANALYSIS OF HUMAN ELEMENTS IN COMBAT

FACTOR	INDICATOR	INFLUENCE ON COMBAT EFFECTIVENESS		REMARKS
Leadership	1. Level of education	+		Specifically military education.
	2. Previous success as combat leaders	+		Builds confidence in leader and soldiers.
	3. Length of time with present unit	+		a. Builds cohesion b. Incentive in staying with unit is better than getting out.
	4. Leadership style	0		Lead by example may be an indicator.
	5. Key MOS position fills	0		a. Not too significant in combat unit. b. More significant in CS and CSS units.
	6. Officer Leader casualties	0		a. Not characteristic of breakpoint in combat unit. b. Could be indicator of positive leadership through leading by example.

FACTOR	INDICATOR	INFLUENCE ON COMBAT EFFECTIVENESS	REMARKS
Training	1. Prior exposure to training in similar combat operation, terrain and weather environment.	+	More significant in early stages of war. Will diminish as the war progresses and taken over by cohesion, experience and leadership in its influence on combat effectiveness.
	2. Degree of realism in training.	+	
	3. Functioning of leaders in training.	+	
	4. Confidence in leaders, weapons and equipment as a result of training.	+	

FACTOR	INDICATOR	INFLUENCE ON		REMARKS
		COMBAT	EFFECTIVENESS	
Experience	1. Duration of unit tour in combat zone		+/-	Positive influence until reaching the psychological culminating point, subsequently diminishing in motivation.
	2. Exposure to continuous combat operations or intense combat.		0	a. Subject to other factors, but other things being equal, may affect fatigue and decrease in combat effectiveness.
	3. The degree of success in performing previous missions.		+	b. soldiers are most vulnerable to either the immediate or delayed onset of battle shock when they experience intense fighting, rather than duration, have low morale and psychologically detached from their unit.
	4. Perceptions of "wasteful casualties in previous performance		-	
	5. Previous combat victories		+	
	6. Consistent pattern of combat effectiveness.		+	
	7. Exposure to deprivation of physical needs.		-	Lack of sleep, water, food and factors such as weather and fear may diminish the ability for positive actions.
	8. Preparation for upcoming operations.		+	Rest Periods can recover previously lost combat effectiveness.

FACTOR	INDICATOR	INFLUENCE ON		REMARKS
		COMBAT EFFECTIVENESS		
Cohesion	1. Replacement system:			
	a. By individuals	-		Individual replacements
	b. By units	+		Needs time to build unit cohesion.
	2. Recruitment and career pattern:			
	a. By individuals	-		Soldiers from similar background and service with the same team for a sustained period of time build better cohesion.
	b. By geographical and unit affiliation	+		
	3. Sustained period of time serving with the same unit.			
	4. The unit has a successful record going through an ordeal together.	+		The greater the degree of challenge, hardship, if successful the greater the development of mutual affection among unit members.
	5. Soldiers field that their needs are being met better when they stay in unit, rather than affiliate with other group or get out of unit:			
	a. Proud unit tradition and reputation.	+		
	b. Discipline enforcement and other leadership resultants.	+		

FACTOR	INDICATOR	INFLUENCE ON COMBAT EFFECTIVENESS	REMARKS
Manpower Quality	1. Level of education of recruits or character preference of recruits (subject to priority characteristic required to make better soldiers)	+	1. Significant for force structuring but will diminish as the war progresses.
	2. Recruitment system based on economic, social and educational cross section of the nation rather than one that includes low capability individual in sharp disproportion to the general population.	+	2. No clear procedure has been established for findings resulted.
	3. Other factors such as race and culture, psychological preferences, etc.	0	3. No significant relevance to determining combat power in the command estimate, because it is conducted at such time before the unit enters combat zone, and as the war progresses, its relevance is overtaken by training, experience, and leadership.

FACTOR	INDICATOR	INFLUENCE ON COMBAT EFFECTIVENESS	REMARKS
National Charac- teristic	1. Has there been a consistent combat effectiveness in the history of the nation?	+	a. Factors should be studied in the relative historical period to the present time.
	2. Is the nation the primary loyalty of the people?	+	b. National characteristics of combat effectiveness appear to change slowly over time, but once lost, may be hard to restore.
	3. How does the national political system award the military status in the eyes of the society, and how does the fact support the system? If the answer is yes,	+	
	4. How does the soldier perceive the support of the society to the war effort? If yes,	+	
	5. A positive perception by the soldier of the legitimacy of war.	+	

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